



**Top Manufacturer** of Topcon Solar  
Module and Cells



GLOBAL SMART ENERGY  
SOLUTIONS PROVIDER

**NINGBO OSDA SOLAR CO., LTD.**

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# COMPANY INTRODUCTION

## CERTIFICATES



## ABOUT OSDA

OSDA SOLAR has been specializing in offering distributed photovoltaic solutions since 2009, including PV Module, solar cells, all-in-one solutions for industrial, commercial and residential solar roof top projects, as well as smart energy management and maintenance service.

OSDA SOLAR has four domestic production sites, the current annual capacity of solar panel reaches up to 10Gw, and solar cells 12Gw, certificates such as ISO, TUV, CE, UL, MCS, IEC, INMETRO, RETIE, SASO, COC and JET.

Over the years, OSDA has supplied products to more than 100 Countries, Overseas offices have established in Germany, Netherlands, Poland, India, Brazil, Pakistan, Bangladesh and etc.

OSDA mission is Let Thousands of Households Share Green Energy.

OSDA vision is to be Global Smart Energy Solution Provider.

OSDA Values is Customer orientation, contribution oriented, continuous innovation, and win-win cooperation.



**10** years +  
Module production



**10** +  
Overseas Offices



**100** +  
Client Country



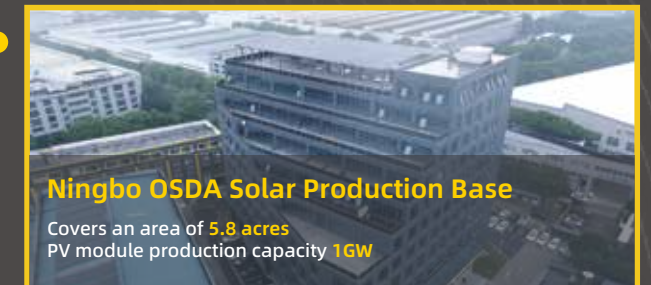
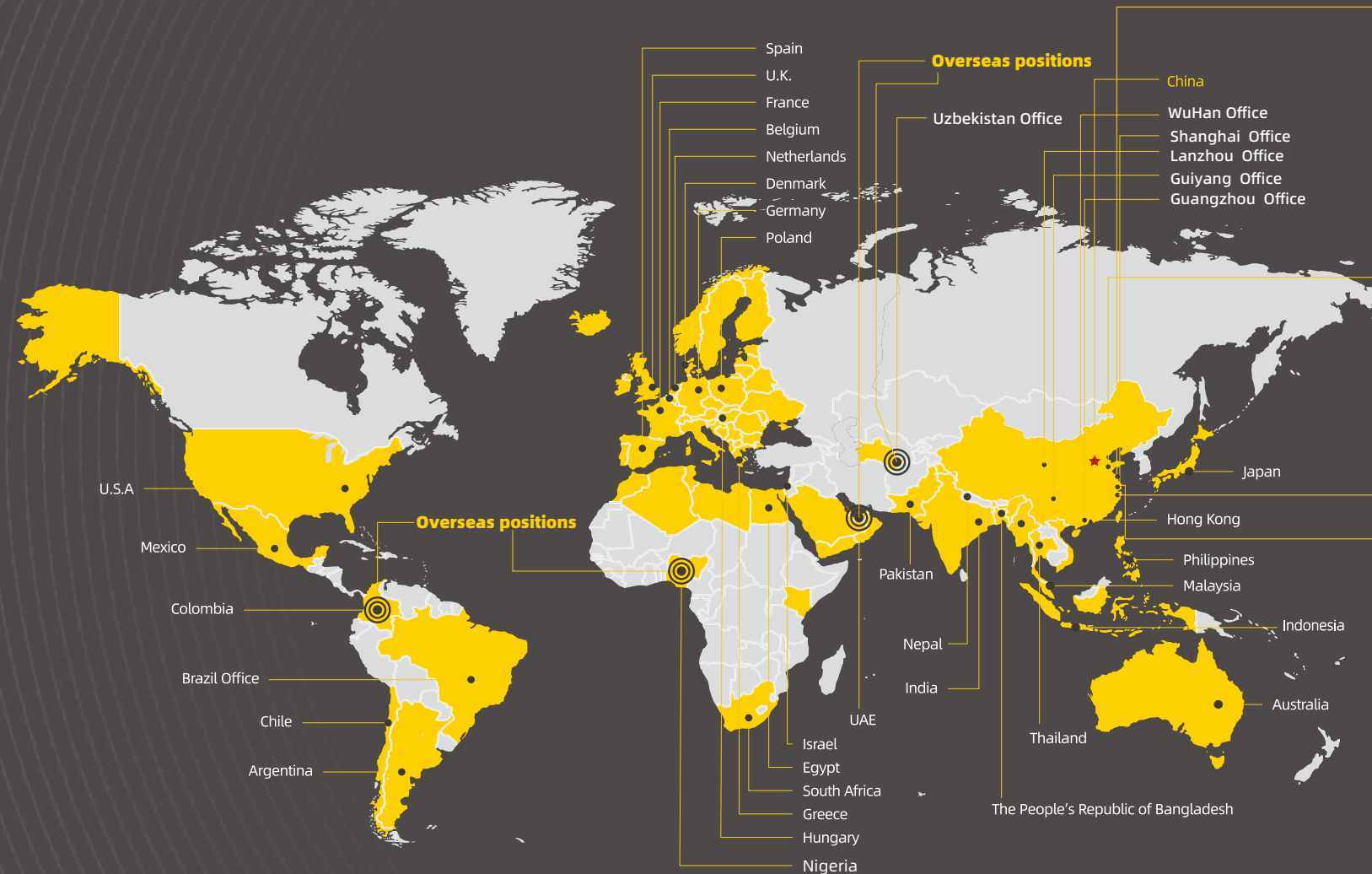
**2** times  
annual growth



**100,00** +  
Service Clients

# FOR PASSED 15 YEARS:

OSDA SOLAR HAS COMPLETED THE STRATEGIC LAYOUT OF THE GLOBAL INDUSTRIAL CHAIN



**2009**  
Establishment

**100+**  
Countries Covered

**10+**  
Oversea Branches

**4**  
Production Bases

# ODA-108MHB

HOT



Lower power loss



Lower temperature coefficient



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy



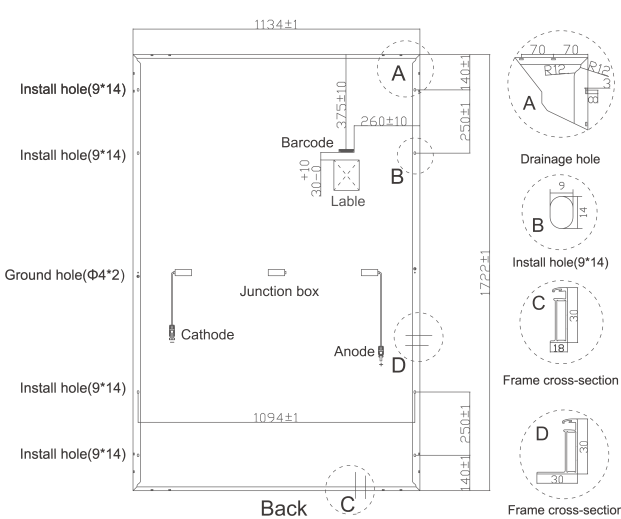
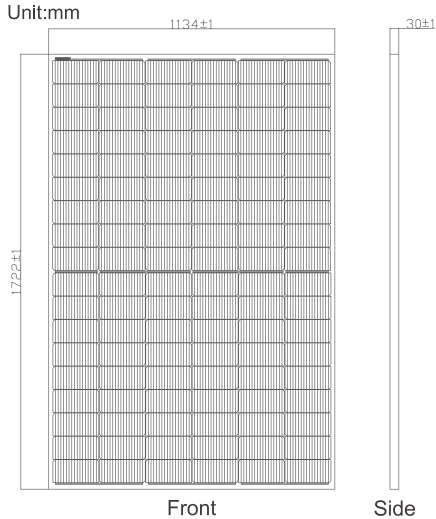
12  
YEARS

Guarantee

25  
YEARS

Warranty

Osda



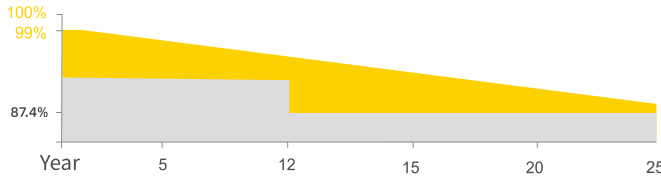
## SPECIFICATION

| Model type                                   | ODA420-27V-MHB           | ODA425-27V-MHB | ODA430-27V-MHB | ODA435-27V-MHB | ODA440-27V-MHB |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 420.00                   | 425.00         | 430.00         | 435.00         | 440.00         |
| Maximum Power Voltage (Vmp)                  | 31.51                    | 31.70          | 31.88          | 32.06          | 32.24          |
| Maximum Power Current (Imp)                  | 13.33                    | 13.41          | 13.49          | 13.57          | 13.65          |
| Open Circuit Voltage (Voc)                   | 38.11±3%                 | 38.3±3%        | 38.49±3%       | 38.68±3%       | 38.87±3%       |
| Short Circuit Current (Isc)                  | 14.07±3%                 | 14.15±3%       | 14.23±3%       | 14.31±3%       | 14.39±3%       |
| Module Efficiency (%)                        | 21.51                    | 21.76          | 22.02          | 22.28          | 22.54          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.300 %/°C              |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.260%/°C               |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.047%/°C               |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |

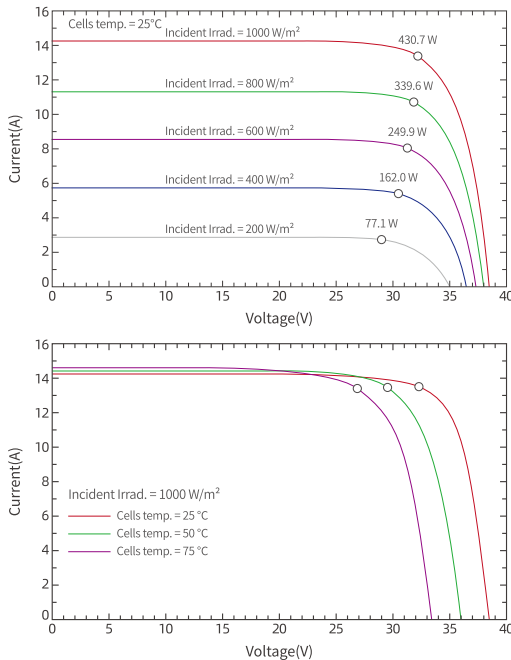
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                                   |
|--------------------------------|---------------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Black Mono                          |
| No. of Cells                   | 108 (12*9)                                        |
| Dimensions(mm)                 | 1722*1134*30                                      |
| Weight                         | 21.50kg                                           |
| Front Glass(mm)                | 3.2mm high transmission, low iron, tempered glass |
| Frame                          | Anodized Aluminium Alloy                          |
| Maximum System Voltage (V)     | 1500 V                                            |
| Maximum Series Fuse Rating (A) | 25 A                                              |
| Junction box                   | IP68 3diodes                                      |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector)         |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                                     |
| 20FT container                 | 6 Packages/222pcs                                 |
| 40HQ container                 | 26 Packages/962pcs                                |

## WARRANTY



## IV CURVE



# ODA-108MHBD



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



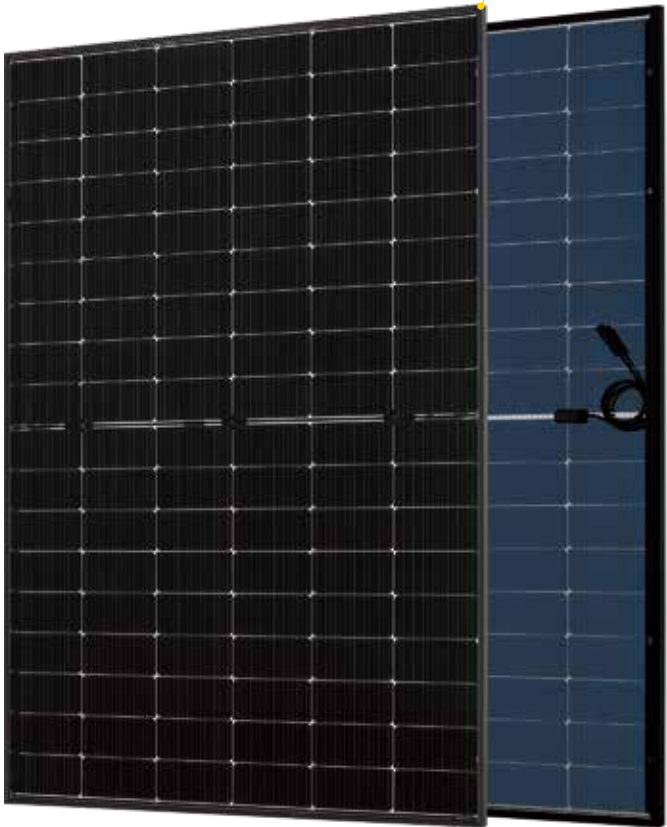
Better performance in lower light environment



Lower shipping cost on per watt



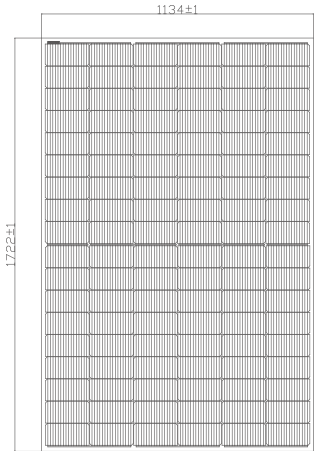
Lower leveled cost on energy



Optional (unframed)



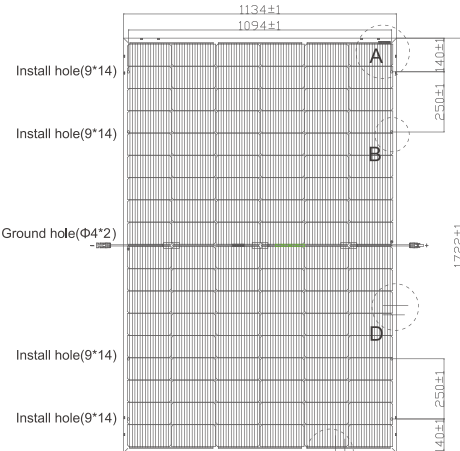
Unit:mm



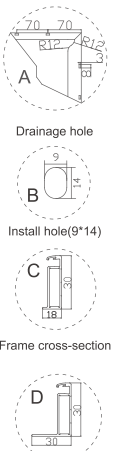
Front



Side



Back



Frame cross-section

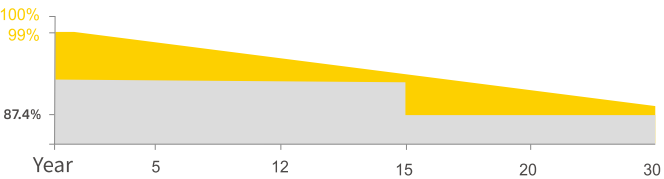
## SPECIFICATION (STC)

| Model type                                   | ODA420-27V-MHBD          | ODA425-27V-MHBD | ODA430-27V-MHBD | ODA435-27V-MHBD | ODA440-27V-MHBD |
|----------------------------------------------|--------------------------|-----------------|-----------------|-----------------|-----------------|
| Peak Power (Pmax)                            | 420.00                   | 425.00          | 430.00          | 435.00          | 440.00          |
| Maximum Power Voltage (Vmp)                  | 31.51                    | 31.70           | 31.88           | 32.06           | 32.24           |
| Maximum Power Current (Imp)                  | 13.33                    | 13.41           | 13.49           | 13.57           | 13.65           |
| Open Circuit Voltage (Voc)                   | 38.11±3%                 | 38.30±3%        | 38.49±3%        | 38.68±3%        | 38.87±3%        |
| Short Circuit Current (Isc)                  | 14.07±3%                 | 14.15±3%        | 14.23±3%        | 14.31±3%        | 14.39±3%        |
| Module Efficiency (%)                        | 21.51                    | 21.76           | 22.02           | 22.28           | 22.54           |
| Power Tolerance                              | 0~+3 W                   |                 |                 |                 |                 |
| Pmax Temperature Coefficients (W/°C)         | -0.290 %/°C              |                 |                 |                 |                 |
| Voc Temperature Coefficients (V/°C)          | -0.250 %/°C              |                 |                 |                 |                 |
| Isc Temperature Coefficients (A/°C)          | +0.041 %/°C              |                 |                 |                 |                 |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                 |                 |                 |                 |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                 |                 |                 |                 |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                 |                 |                 |                 |

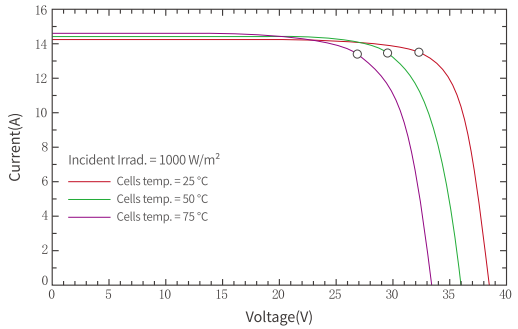
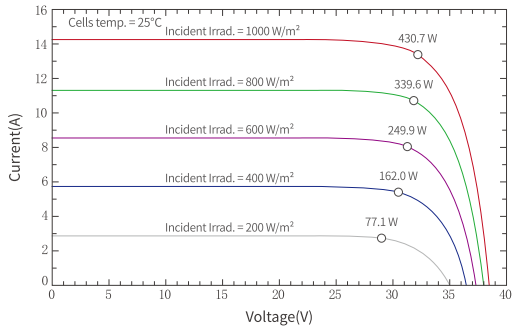
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                           |
|--------------------------------|-------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Bifacial Black Mono         |
| No. of Cells                   | 108 (12*9)                                |
| Dimensions(mm)                 | 1722*1134*30                              |
| Weight                         | 24.70kg                                   |
| Front Glass(mm)                | 2.0mm AR coating tempered glass           |
| Back Glass(mm)                 | 2.0mm Glazed Glass                        |
| Frame                          | Anodized Aluminium Alloy                  |
| Maximum System Voltage (V)     | 1500 V                                    |
| Maximum Series Fuse Rating (A) | 30 A                                      |
| Junction box                   | IP68 3diodes                              |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                             |
| 20FT container                 | 6 Packages/222pcs                         |
| 40HQ container                 | 26 Packages/962pcs                        |

## WARRANTY



## IV CURVE



15  
YEARS

Guarantee

30  
YEARS

Warranty

# ODA-108MH



Lower power loss



Lower temperature coefficient



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy

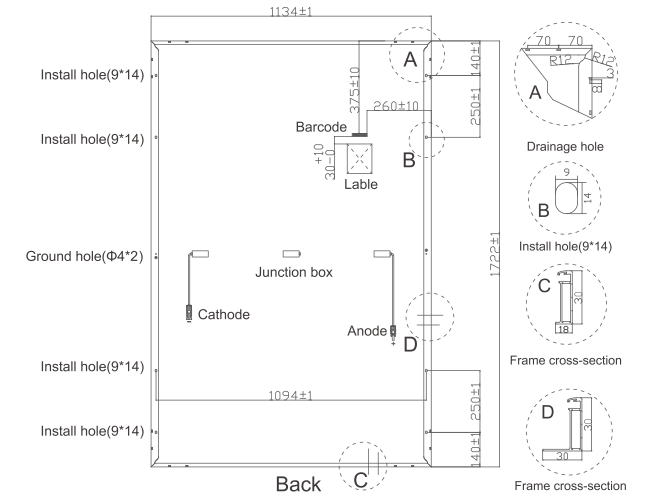
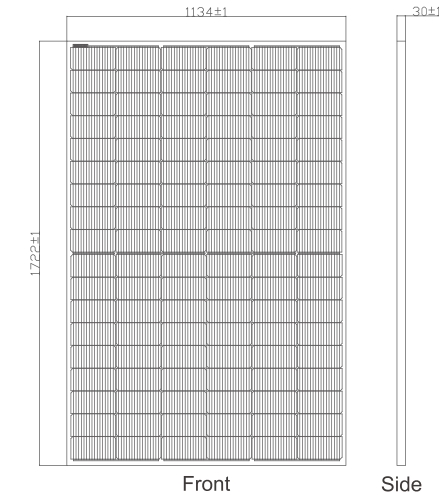


**12**  
YEARS  
Guarantee

**25**  
YEARS  
Warranty

**Osda**

Unit:mm



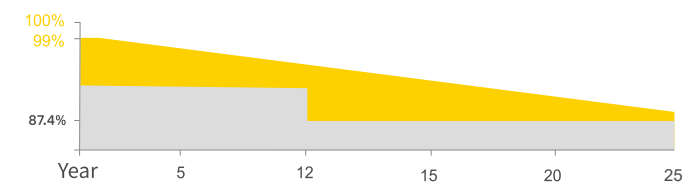
## SPECIFICATION

| Model type                                   | ODA420-27V-MH            | ODA425-27V-MH | ODA430-27V-MH | ODA435-27V-MH | ODA440-27V-MH |
|----------------------------------------------|--------------------------|---------------|---------------|---------------|---------------|
| Peak Power (Pmax)                            | 440.00                   | 425.00        | 430.00        | 435.00        | 440.00        |
| Maximum Power Voltage (Vmp)                  | 31.51                    | 31.71         | 31.88         | 32.06         | 32.24         |
| Maximum Power Current (Imp)                  | 13.33                    | 13.41         | 13.49         | 13.57         | 13.65         |
| Open Circuit Voltage (Voc)                   | 38.11±3%                 | 38.30±3%      | 38.49±3%      | 38.68±3%      | 38.87±3%      |
| Short Circuit Current (Isc)                  | 14.07±3%                 | 14.15±3%      | 14.23±3%      | 14.31±3%      | 14.39±3%      |
| Module Efficiency (%)                        | 21.51                    | 21.76         | 22.02         | 22.28         | 22.54         |
| Power Tolerance                              | 0~+3 W                   |               |               |               |               |
| Pmax Temperature Coefficients (W/°C)         | -0.300 %/°C              |               |               |               |               |
| Voc Temperature Coefficients (V/°C)          | -0.260 %/°C              |               |               |               |               |
| Isc Temperature Coefficients (A/°C)          | +0.047 %/°C              |               |               |               |               |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |               |               |               |               |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |               |               |               |               |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |               |               |               |               |

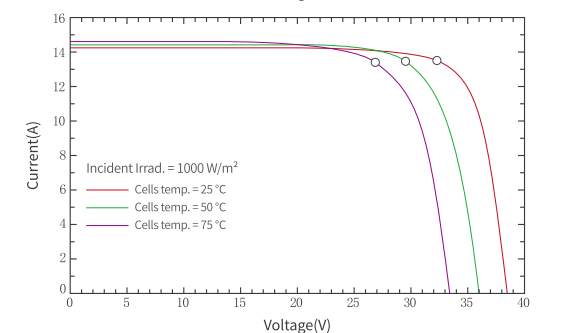
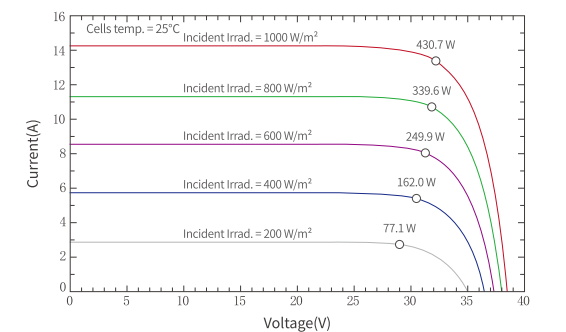
## MECHANICAL CHARACTERISRTICS&PACKING

|                                |                                                   |
|--------------------------------|---------------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Mono                                |
| No. of Cells                   | 108 (12*9)                                        |
| Dimensions(mm)                 | 1722*1134*30                                      |
| Weight                         | 21.50kg                                           |
| Front Glass(mm)                | 3.2mm high transmission, low iron, tempered glass |
| Frame                          | Anodized Aluminium Alloy (Silver/Black)           |
| Maximum System Voltage (V)     | 1500 V                                            |
| Maximum Series Fuse Rating (A) | 25 A                                              |
| Junction box                   | IP68 3diodes                                      |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector)         |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                                     |
| 20FT container                 | 6 Packages/222pcs                                 |
| 40HQ container                 | 26 Packages/962pcs                                |

## WARRANTY



## IV CURVE



ODA-108MHD



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



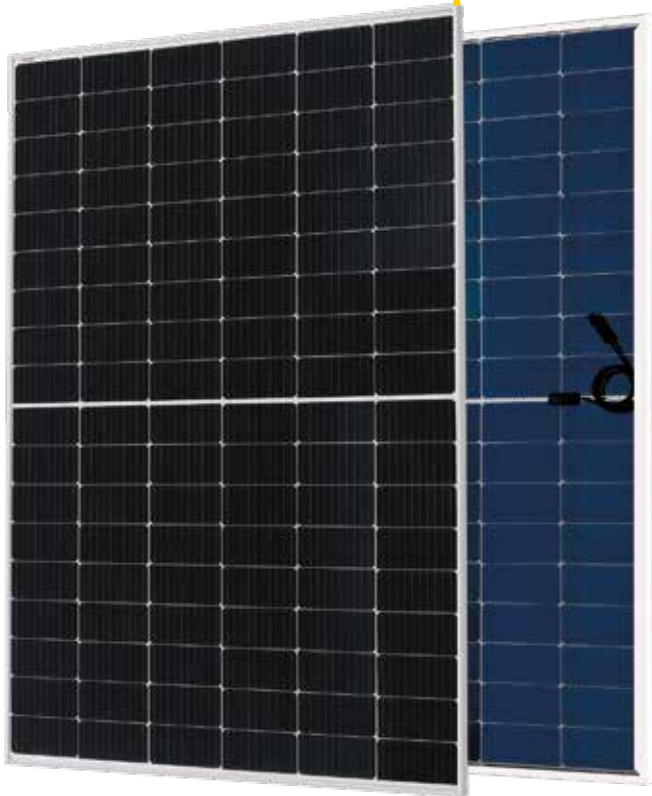
Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy



15  
YEARS

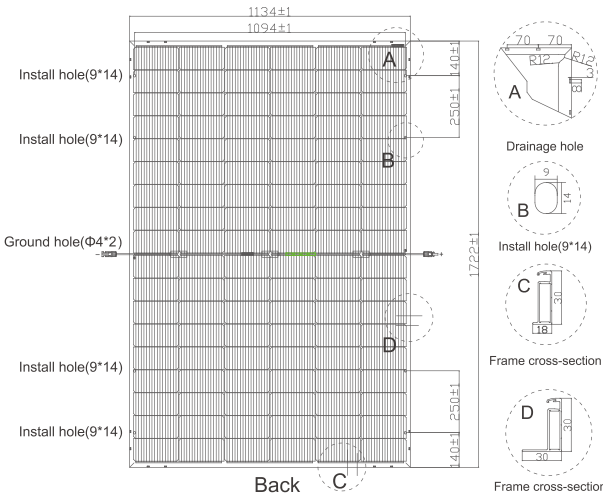
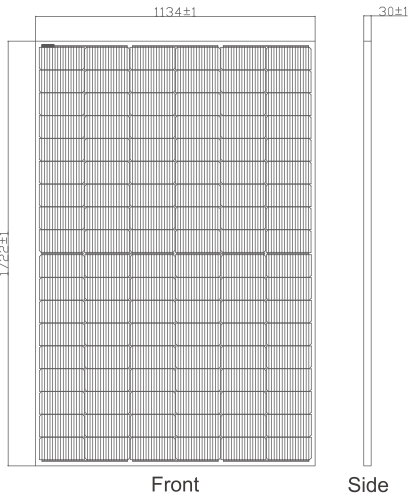
Guarantee

30  
YEARS

Warranty



Unit:mm



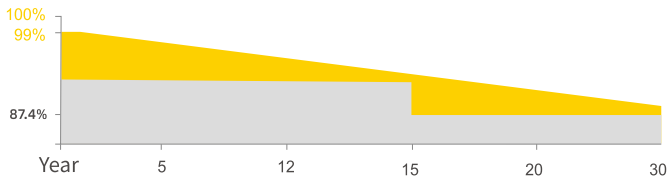
SPECIFICATION (STC)

| Model type                                   | ODA420-27V-MHD           | ODA425-27V-MHD | ODA430-27V-MHD | ODA435-27V-MHD | ODA440-27V-MHD |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 420.00                   | 425.00         | 430.00         | 435.00         | 440.00         |
| Maximum Power Voltage (Vmp)                  | 31.51                    | 31.70          | 31.88          | 32.06          | 32.24          |
| Maximum Power Current (Imp)                  | 13.33                    | 13.41          | 13.49          | 13.57          | 13.65          |
| Open Circuit Voltage (Voc)                   | 38.11±3%                 | 38.30±3%       | 38.49±3%       | 38.68±3%       | 38.87±3%       |
| Short Circuit Current (Isc)                  | 14.07±3%                 | 14.15±3%       | 14.23±3%       | 14.31±3%       | 14.39±3%       |
| Module Efficiency (%)                        | 21.51                    | 21.76          | 22.02          | 22.28          | 22.54          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.290%/°C               |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.250 %/°C              |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.041%/°C               |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~-+85 °C              |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |

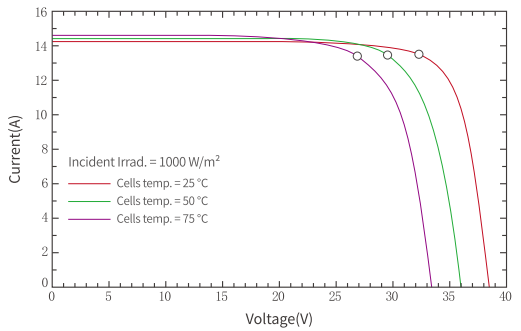
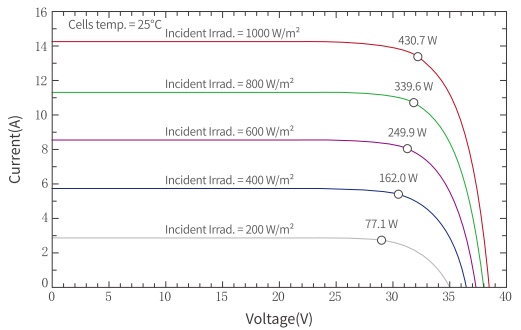
MECHANICAL CHARACTERISTICS&PACKING

|                                |                                           |
|--------------------------------|-------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Bifacial Mono               |
| No. of Cells                   | 108 (12*9)                                |
| Dimensions(mm)                 | 1722*1134*30                              |
| Weight                         | 24.70kg                                   |
| Front Glass(mm)                | 2.0mm AR coating tempered glass           |
| Back Glass(mm)                 | 2.0mm Glazed Glass                        |
| Frame                          | Anodized Aluminium Alloy(Silver/Black)    |
| Maximum System Voltage (V)     | 1500 V                                    |
| Maximum Series Fuse Rating (A) | 30 A                                      |
| Junction box                   | IP68 3diodes                              |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                             |
| 20FT container                 | 6 Packages/222pcs                         |
| 40HQ container                 | 26 Packages/962pcs                        |

WARRANTY



IV CURVE



# ODA-120MH



Lower power loss



Lower temperature coefficient



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy



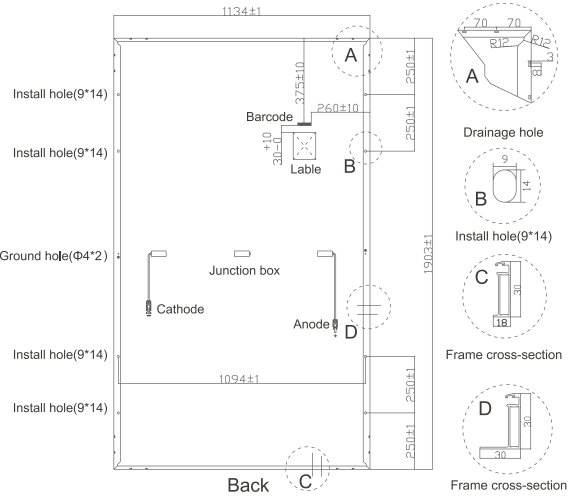
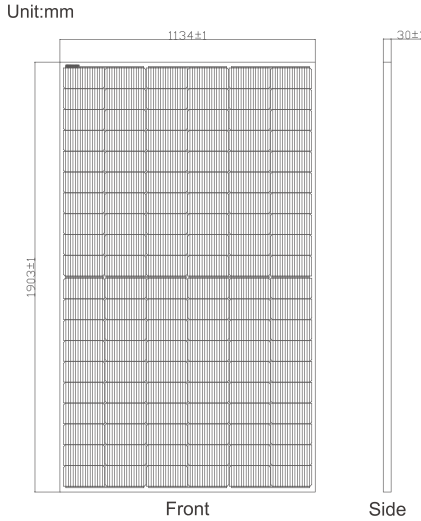
12  
YEARS

Guarantee

25  
YEARS

Warranty

Osda



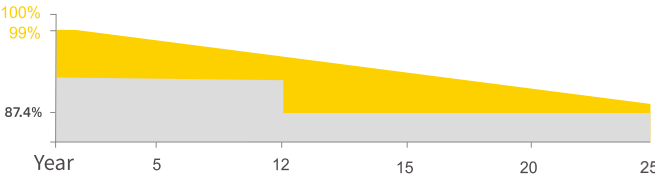
## SPECIFICATION

| Model type                                   | ODA465-30V-MH            | ODA470-30V-MH | ODA475-30V-MH | ODA480-30V-MH | ODA485-30V-MH | ODA490-30V-MH |
|----------------------------------------------|--------------------------|---------------|---------------|---------------|---------------|---------------|
| Peak Power (Pmax)                            | 465.00                   | 470.00        | 475.00        | 480.00        | 485.00        | 490.00        |
| Maximum Power Voltage (Vmp)                  | 34.89                    | 35.05         | 35.22         | 35.37         | 35.53         | 35.70         |
| Maximum Power Current (Imp)                  | 13.33                    | 13.41         | 13.49         | 13.75         | 13.65         | 13.73         |
| Open Circuit Voltage (Voc)                   | 42.22±3%                 | 42.38±3%      | 42.54±3%      | 42.70±3%      | 42.86±3%      | 43.03±3%      |
| Short Circuit Current (Isc)                  | 14.07±3%                 | 14.15±3%      | 14.23±3%      | 14.31±3%      | 14.39±3%      | 14.47±3%      |
| Module Efficiency (%)                        | 21.55                    | 21.78         | 22.01         | 22.24         | 22.47         | 22.70         |
| Power Tolerance                              | 0~+3 W                   |               |               |               |               |               |
| Pmax Temperature Coefficients (W/°C)         | -0.300 %/°C              |               |               |               |               |               |
| Voc Temperature Coefficients (V/°C)          | -0.260 %/°C              |               |               |               |               |               |
| Isc Temperature Coefficients (A/°C)          | +0.047 %/°C              |               |               |               |               |               |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |               |               |               |               |               |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |               |               |               |               |               |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |               |               |               |               |               |

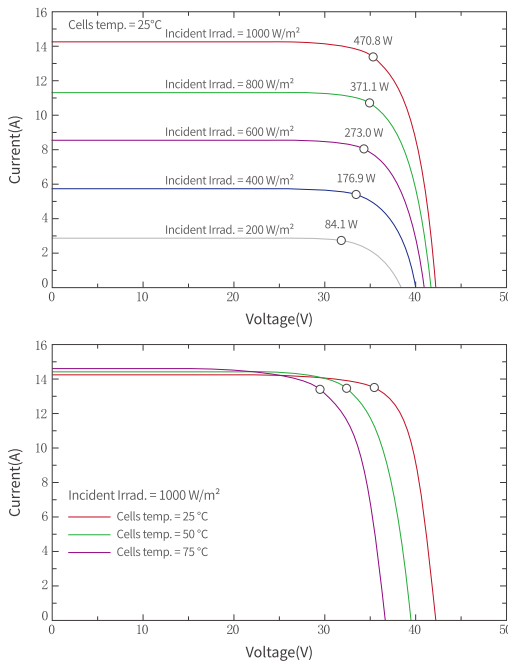
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                                   |
|--------------------------------|---------------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Mono                                |
| No. of Cells                   | 120 (12*10)                                       |
| Dimensions(mm)                 | 1903*1134*30                                      |
| Weight                         | 23.80kg                                           |
| Front Glass(mm)                | 3.2mm high transmission, low iron, tempered glass |
| Frame                          | Anodized Aluminium Alloy (Silver/Black)           |
| Maximum System Voltage (V)     | 1500 V                                            |
| Maximum Series Fuse Rating (A) | 25 A                                              |
| Junction box                   | IP68 3diodes                                      |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector)         |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                                     |
| 20FT container                 | 6Packages/222pcs                                  |
| 40HQ container                 | 24Packages/888pcs                                 |

## WARRANTY



## IV CURVE



# ODA-120MHD



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy



15  
YEARS

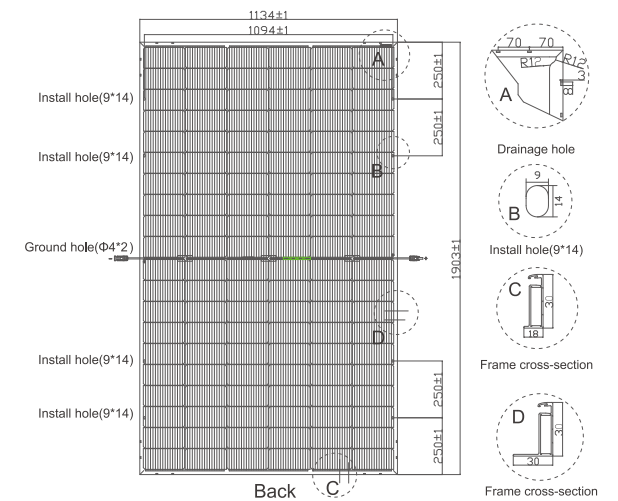
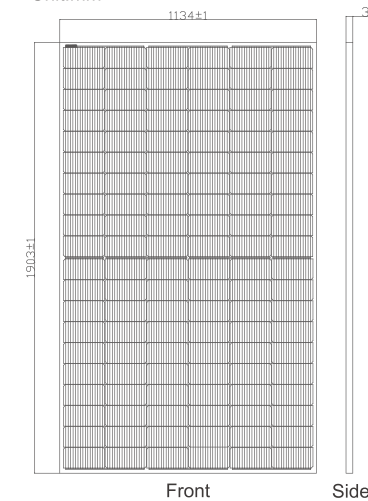
Guarantee

30  
YEARS

Warranty

Osda

Unit:mm



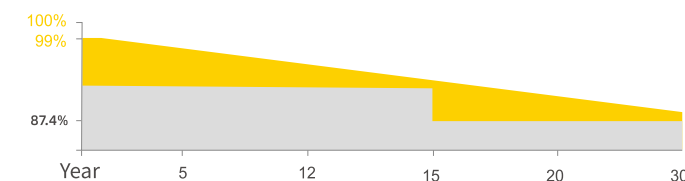
## SPECIFICATION (STC)

| Model type                                   | ODA465-30V-MHD           | ODA470-30V-MHD | ODA475-30V-MHD | ODA480-30V-MHD | ODA485-30V-MHD | ODA490-30V-MHD |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 465.00                   | 470.00         | 475.00         | 480.00         | 485.00         | 490.00         |
| Maximum Power Voltage (Vmp)                  | 34.89                    | 35.05          | 35.22          | 35.38          | 35.53          | 35.70          |
| Maximum Power Current (Imp)                  | 13.33                    | 13.41          | 13.49          | 13.57          | 13.65          | 13.73          |
| Open Circuit Voltage (Voc)                   | 42.22±3%                 | 42.38±3%       | 42.54±3%       | 42.71±3%       | 42.86±3%       | 43.03±3%       |
| Short Circuit Current (Isc)                  | 14.07±3%                 | 14.15±3%       | 14.23±3%       | 14.31±3%       | 14.39±3%       | 14.47±3%       |
| Module Efficiency (%)                        | 21.55                    | 21.78          | 22.01          | 22.24          | 22.47          | 22.70          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.290 %/°C              |                |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.250 %/°C              |                |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.041 %/°C              |                |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |                |

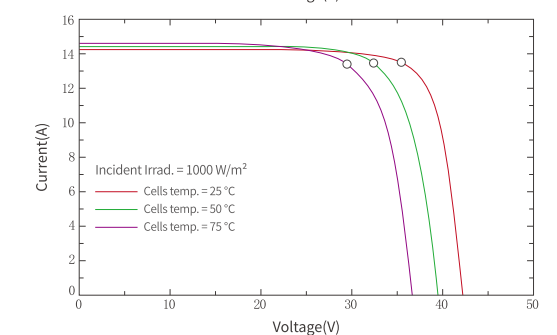
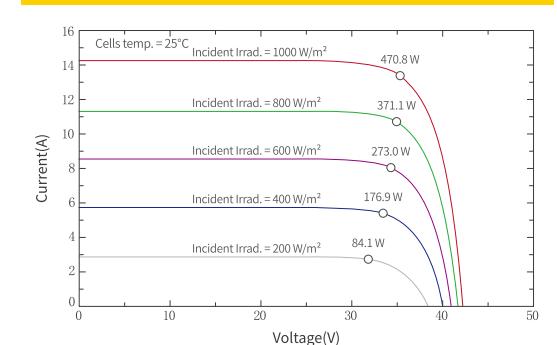
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                           |
|--------------------------------|-------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Bifacial Mono               |
| No. of Cells                   | 120 (12*10)                               |
| Dimensions(mm)                 | 1903*1134*30                              |
| Weight                         | 27.2kg                                    |
| Front Glass(mm)                | 2.0mm AR coating tempered glass           |
| Back Glass(mm)                 | 2.0mm Glazed Glass                        |
| Frame                          | Anodized Aluminium Alloy(Silver/Black)    |
| Maximum System Voltage (V)     | 1500 V                                    |
| Maximum Series Fuse Rating (A) | 30 A                                      |
| Junction box                   | IP68 3diodes                              |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                             |
| 20FT container                 | 6Packages/222pcs                          |
| 40HQ container                 | 24Packages/888pcs                         |

## WARRANTY



## IV CURVE



ODA-132MH



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



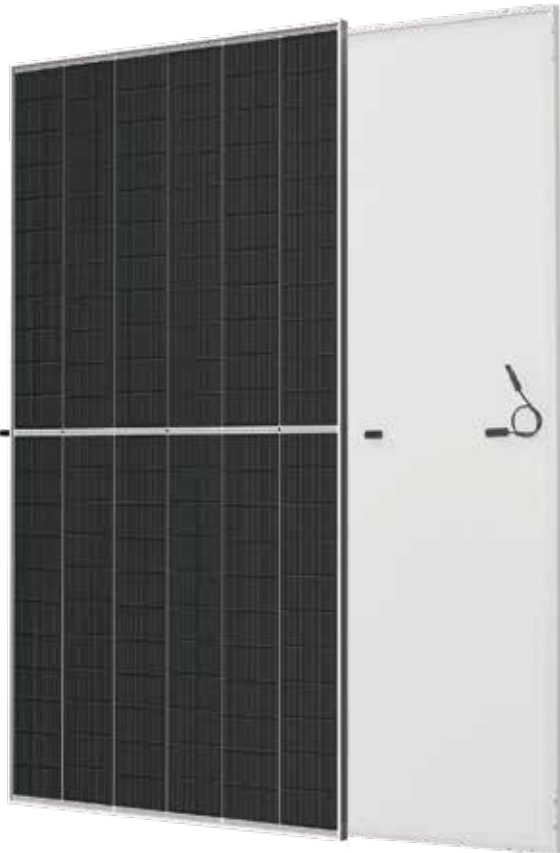
Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy

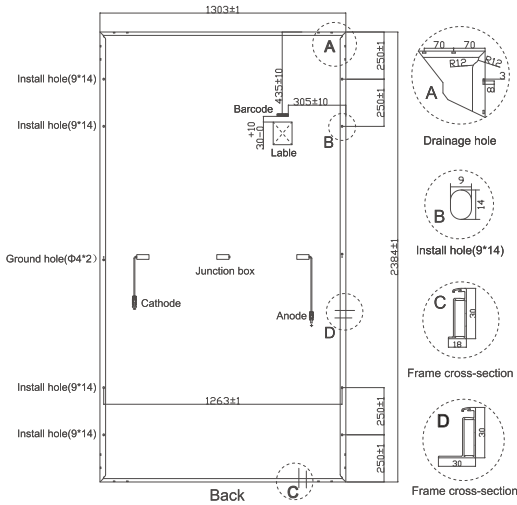
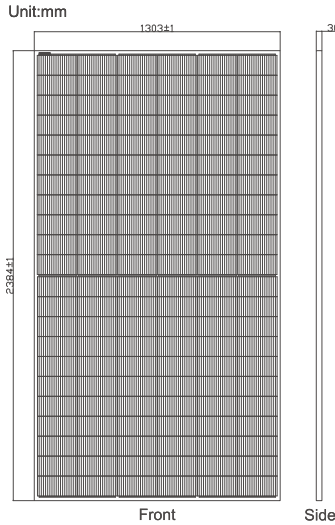


12  
YEARS

Guarantee

25  
YEARS

Warranty



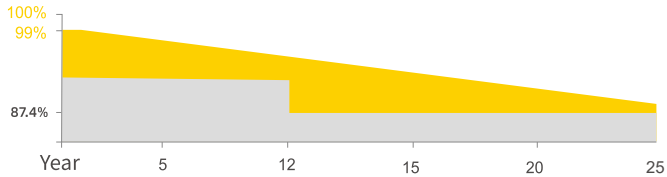
SPECIFICATION (STC)

| Model type                                   | ODA670-33V-MH            | ODA675-33V-MH | ODA680-33V-MH | ODA685-33V-MH | ODA690-33V-MH | ODA695-33V-MH | ODA700-33V-MH |
|----------------------------------------------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Peak Power (Pmax)                            | 670.00                   | 675.00        | 680.00        | 685.00        | 690.00        | 695.00        | 700.00        |
| Maximum Power Voltage (Vmp)                  | 39.52                    | 39.72         | 39.92         | 40.12         | 40.32         | 40.52         | 40.72         |
| Maximum Power Current (Imp)                  | 16.96                    | 17.00         | 17.04         | 17.08         | 17.12         | 17.16         | 17.20         |
| Open Circuit Voltage (Voc)                   | 47.42±3%                 | 47.66±3%      | 47.90±3%      | 48.14±3%      | 48.38±3%      | 48.62±3%      | 48.86±3%      |
| Short Circuit Current (Isc)                  | 17.72±3%                 | 17.76±3%      | 17.80±3%      | 17.84±3%      | 17.88±3%      | 17.93±3%      | 17.97±3%      |
| Module Efficiency (%)                        | 21.57                    | 21.73         | 21.90         | 22.06         | 22.22         | 22.38         | 22.54         |
| Power Tolerance                              | 0~+3 W                   |               |               |               |               |               |               |
| Pmax Temperature Coefficients (W/°C)         | -0.300 %/°C              |               |               |               |               |               |               |
| Voc Temperature Coefficients (V/°C)          | -0.260 %/°C              |               |               |               |               |               |               |
| Isc Temperature Coefficients (A/°C)          | +0.047%/°C               |               |               |               |               |               |               |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |               |               |               |               |               |               |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |               |               |               |               |               |               |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |               |               |               |               |               |               |

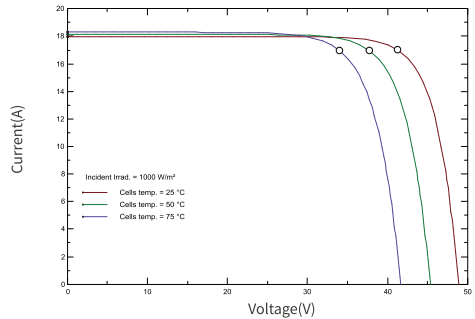
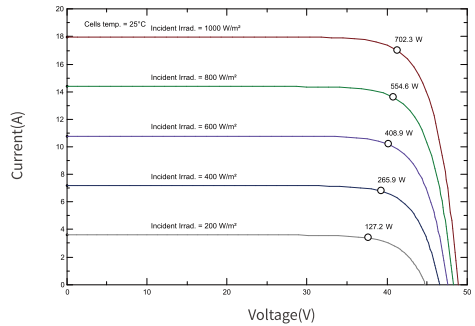
MECHANICAL CHARACTERISTICS&PACKING

|                                |                                               |
|--------------------------------|-----------------------------------------------|
| Cell Type (mm)                 | 210*105 N-Type Mono                           |
| No. of Cells                   | 132(12*11)                                    |
| Dimensions(mm)                 | 2384*1303*30                                  |
| Weight                         | 33.90kg                                       |
| Front Glass(mm)                | 3.2mm hightransmission,lowiron,tempered glass |
| Frame                          | Anodized Aluminium Alloy                      |
| Maximum System Voltage (V)     | 1500V                                         |
| Maximum Series Fuse Rating (A) | 30A                                           |
| Junction box                   | IP68 3diodes                                  |
| Output cables                  | 4mm² cable35cm(Including MC4 connector)       |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                                 |
| 40HQ container                 | 18 Packages/666pcs                            |

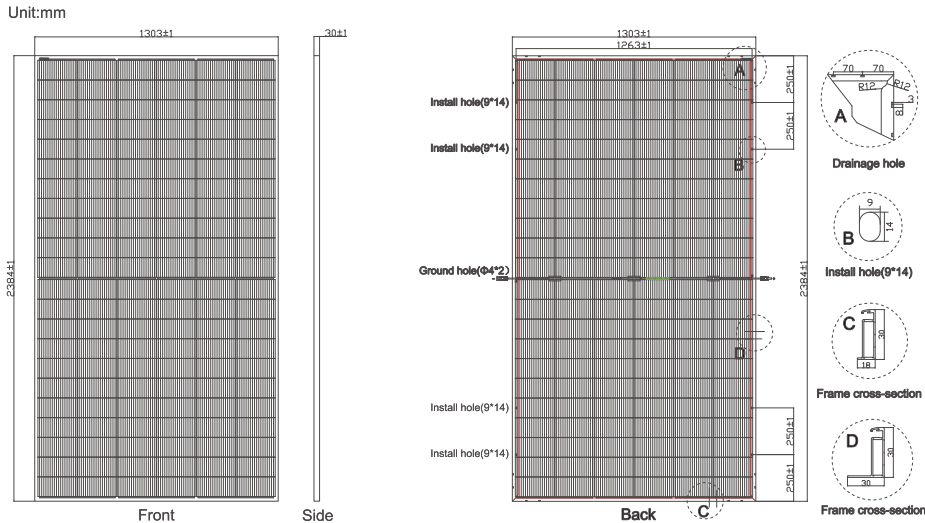
WARRANTY



IV CURVE



ODA-132MHD



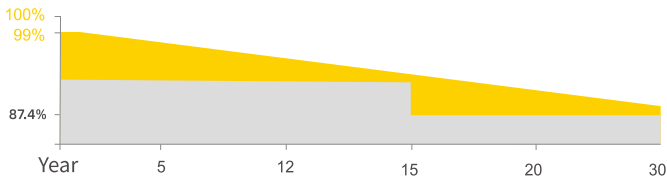
SPECIFICATION (STC)

| Model type                                   | ODA670-33V-MHD           | ODA675-33V-MHD | ODA680-33V-MHD | ODA685-33V-MHD | ODA690-33V-MHD | ODA695-33V-MHD | ODA700-33V-MHD | ODA705-33V-MHD |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 670.00                   | 675.00         | 680.00         | 685.00         | 690.00         | 695.00         | 700            | 705            |
| Maximum Power Voltage (Vmp)                  | 39.52                    | 39.72          | 39.92          | 40.12          | 40.32          | 40.52          | 40.72          | 40.92          |
| Maximum Power Current (Imp)                  | 16.96                    | 17.00          | 17.04          | 17.08          | 17.12          | 17.16          | 17.20          | 17.23          |
| Open Circuit Voltage (Voc)                   | 47.42±3%                 | 47.66±3%       | 47.90±3%       | 48.14±3%       | 48.38±3%       | 48.62±3%       | 48.86±3%       | 49.10±3%       |
| Short Circuit Current (Isc)                  | 17.72±3%                 | 17.76±3%       | 17.80±3%       | 17.84±3%       | 17.88±3%       | 17.93±3%       | 17.97±3%       | 18.00±3%       |
| Module Efficiency (%)                        | 21.57                    | 21.73          | 21.90          | 22.06          | 22.22          | 22.38          | 22.54          | 22.70          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.290 %/°C              |                |                |                |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.250 %/°C              |                |                |                |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.041 %/°C              |                |                |                |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                |                |                |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |                |                |                |

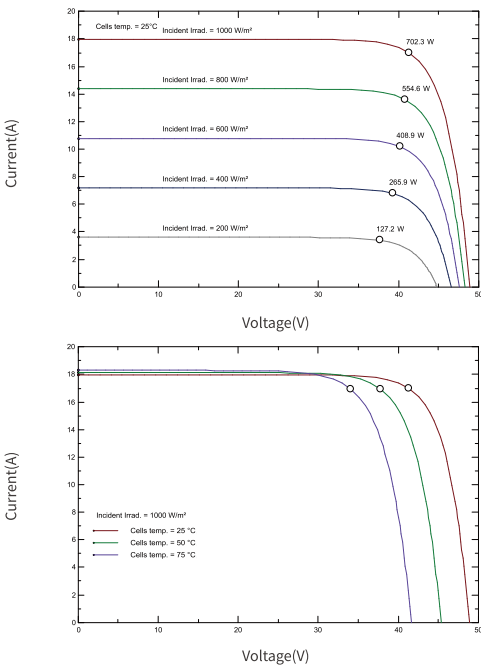
MECHANICAL CHARACTERISTICS&PACKING

|                                |                                         |
|--------------------------------|-----------------------------------------|
| Cell Type (mm)                 | 210*105 N-Type Mono                     |
| No. of Cells                   | 132(12*11)                              |
| Dimensions(mm)                 | 2384*1303*30                            |
| Weight                         | 38kg                                    |
| Front Glass(mm)                | 2.0mm AR coatingtempered glass          |
| Backsheet                      | 2.0mm Glazed Glass                      |
| Frame                          | Anodized Aluminium Alloy                |
| Maximum System Voltage (V)     | 1500V                                   |
| Maximum Series Fuse Rating (A) | 35A                                     |
| Junction box                   | IP68 3diodes                            |
| Output cables                  | 4mm² cable35cm(Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                           |
| 40HQ container                 | 18 Packages/666pcs                      |

WARRANTY



IV CURVE



- Lower power loss
- Lower temperature coefficient
- Higher double-sided revenue
- Better performance in lower light environment
- Lower shipping cost on per watt
- Lower leveled cost on energy



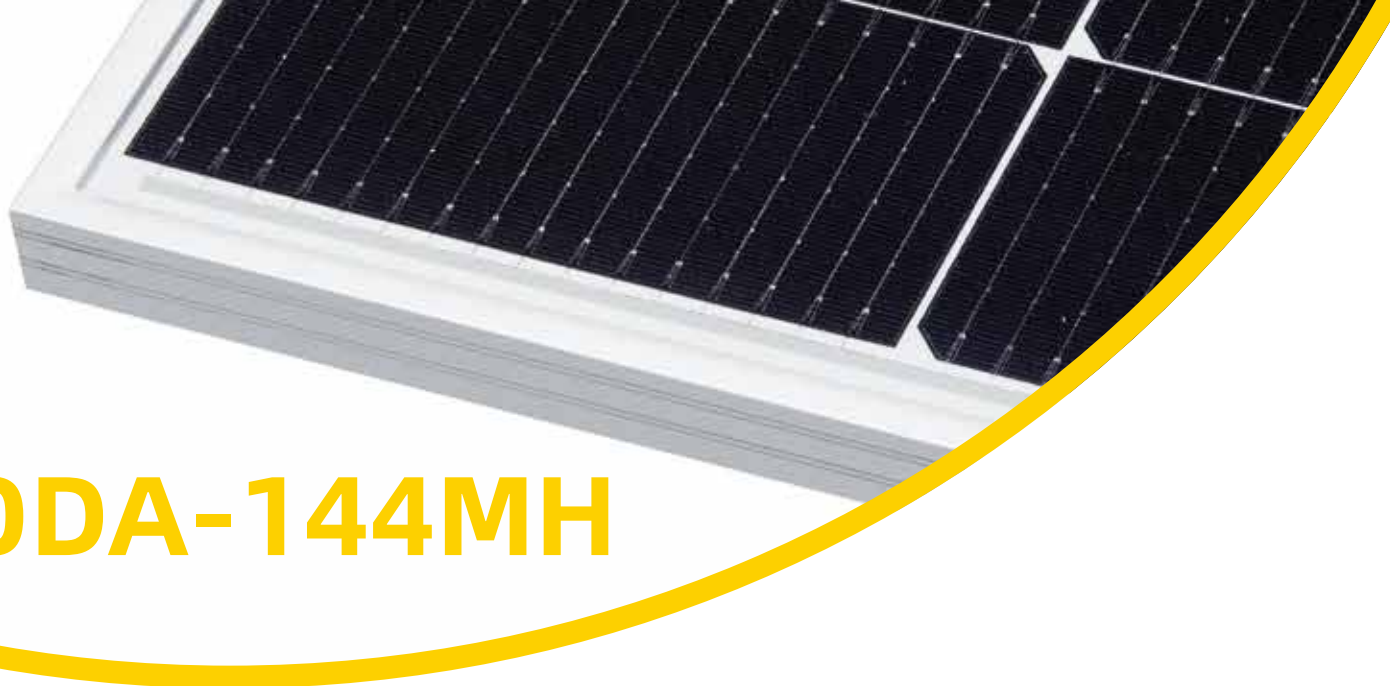
15 YEARS

Guarantee

30 YEARS

Warranty

ODA-144MH



- Lower power loss
- Lower temperature coefficient
- Better performance in lower light environment
- Lower shipping cost on per watt
- Lower leveled cost on energy



12

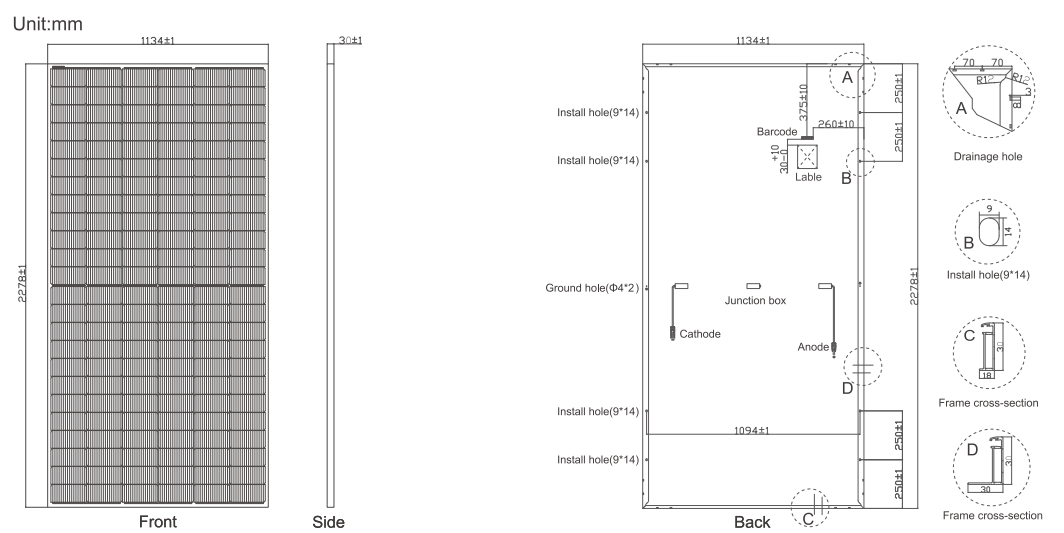
YEARS

Guarantee

25

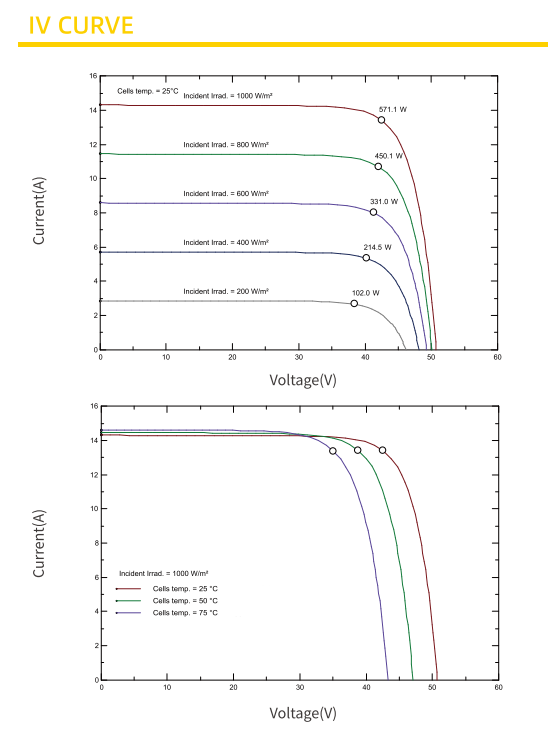
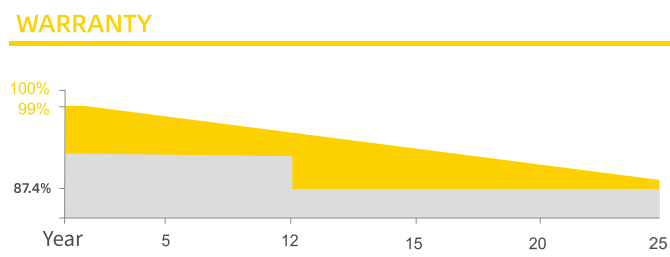
YEARS

Warranty



| SPECIFICATION                                |                          |               |               |               |               |               |               |
|----------------------------------------------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Model type                                   | ODA560-36V-MH            | ODA565-36V-MH | ODA570-36V-MH | ODA575-36V-MH | ODA580-36V-MH | ODA585-36V-MH | ODA590-36V-MH |
| Peak Power (Pmax)                            | 560.00                   | 565.00        | 570.00        | 575.00        | 580.00        | 585.00        | 590.00        |
| Maximum Power Voltage (Vmp)                  | 41.77                    | 41.92         | 42.07         | 42.22         | 42.37         | 42.52         | 42.67         |
| Maximum Power Current (Imp)                  | 13.41                    | 13.48         | 13.55         | 13.62         | 13.69         | 13.76         | 13.83         |
| Open Circuit Voltage (Voc)                   | 50.47±3%                 | 50.60±3%      | 50.74±3%      | 50.88±3%      | 51.02±3%      | 51.16±3%      | 51.30±3%      |
| Short Circuit Current (Isc)                  | 14.15±3%                 | 14.23±3%      | 14.31±3%      | 14.39±3%      | 14.47±3%      | 14.55±3%      | 14.63±3%      |
| Module Efficiency (%)                        | 21.68                    | 21.87         | 22.07         | 22.26         | 22.45         | 22.64         | 22.83         |
| Power Tolerance                              | 0~+3 W                   |               |               |               |               |               |               |
| Pmax Temperature Coefficients (W/°C)         | -0.300 %/°C              |               |               |               |               |               |               |
| Voc Temperature Coefficients (V/°C)          | -0.260%/°C               |               |               |               |               |               |               |
| Isc Temperature Coefficients (A/°C)          | +0.047%/°C               |               |               |               |               |               |               |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |               |               |               |               |               |               |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |               |               |               |               |               |               |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |               |               |               |               |               |               |

| MECHANICAL CHARACTERISRTICS&PACKING |                                                   |
|-------------------------------------|---------------------------------------------------|
| Cell Type (mm)                      | 182*91 N-Type Mono                                |
| No. of Cells                        | 144 (12*12)                                       |
| Dimensions(mm)                      | 2278*1134*30                                      |
| Weight                              | 27.4kg                                            |
| Front Glass(mm)                     | 3.2mm high transmission, low iron, tempered glass |
| Frame                               | Anodized Aluminium Alloy (Silver/Black)           |
| Maximum System Voltage (V)          | 1500 V                                            |
| Maximum Series Fuse Rating (A)      | 25 A                                              |
| Junction box                        | IP68 3diodes                                      |
| Output cables                       | 4mm² cable 90cm (Including MC4 connector)         |
| MaxWind Load/Snow Load              | 2400Pa/5400Pa                                     |
| 20FT container                      | 5 Packages/185pcs                                 |
| 40HQ container                      | 20 Packages/740pcs                                |



# ODA-144MHD



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy

Optional (unframed)



15  
YEARS

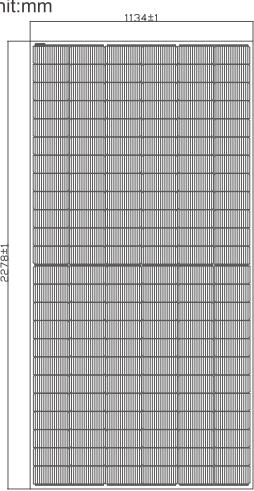
Guarantee

30  
YEARS

Warranty

Osda

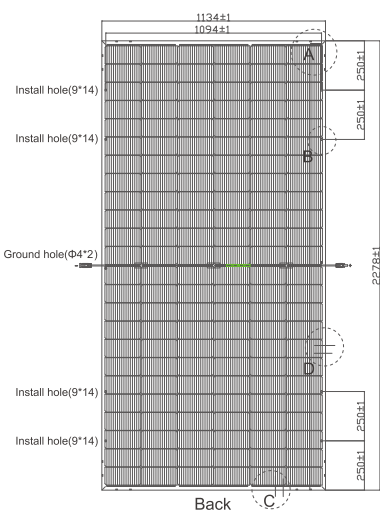
Unit:mm



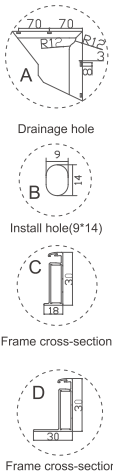
Front



Side



Back



Drainage hole  
Install hole(9\*14)  
Frame cross-section  
Frame cross-section

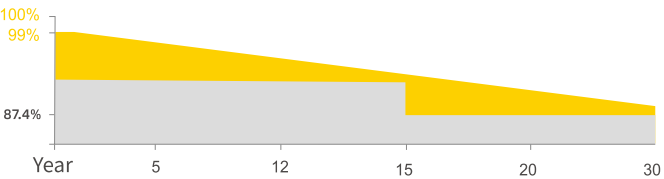
## SPECIFICATION (STC)

| Model type                                   | ODA565-36V-MHD           | ODA570-36V-MHD | ODA575-36V-MHD | ODA580-36V-MHD | ODA585-36V-MHD | ODA590-36V-MHD |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 565.00                   | 570.00         | 575.00         | 580.00         | 585.00         | 590.00         |
| Maximum Power Voltage (Vmp)                  | 41.92                    | 42.07          | 42.22          | 42.37          | 42.52          | 42.67          |
| Maximum Power Current (Imp)                  | 13.48                    | 13.55          | 13.62          | 13.69          | 13.76          | 13.83          |
| Open Circuit Voltage (Voc)                   | 50.60±3%                 | 50.74±3%       | 50.88±3%       | 51.02±3%       | 51.16±3%       | 51.41±3%       |
| Short Circuit Current (Isc)                  | 14.23±3%                 | 14.31±3%       | 14.39±3%       | 14.47±3%       | 14.55±3%       | 14.63±3%       |
| Module Efficiency (%)                        | 21.87                    | 22.07          | 22.26          | 22.45          | 22.64          | 22.83          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.290 %/°C              |                |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.250 %/°C              |                |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.041 %/°C              |                |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |                |

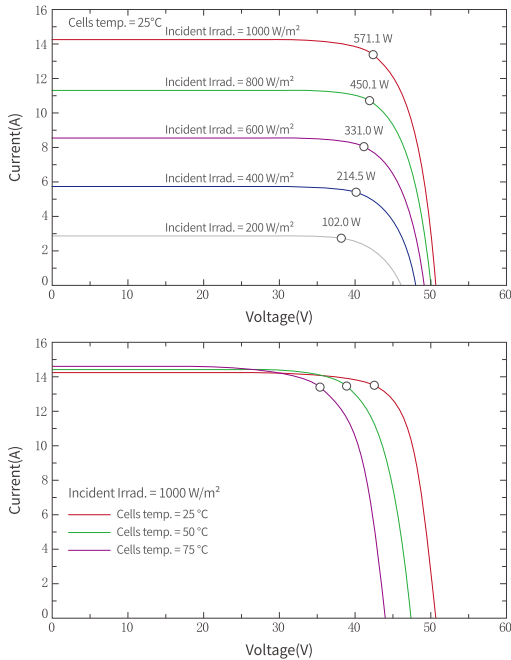
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                           |
|--------------------------------|-------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Bifacial Mono               |
| No. of Cells                   | 144 (12*12)                               |
| Dimensions(mm)                 | 2278*1134*30                              |
| Weight                         | 32kg                                      |
| Front Glass(mm)                | 2.0mm AR coating tempered glass           |
| Back Glass(mm)                 | 2.0mm Glazed Glass                        |
| Frame                          | Anodized Aluminium Alloy (Silver/Black)   |
| Maximum System Voltage (V)     | 1500 V                                    |
| Maximum Series Fuse Rating (A) | 30 A                                      |
| Junction box                   | IP68 3diodes                              |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                             |
| 20FT container                 | 5 Packages/185pcs                         |
| 40HQ container                 | 20 Packages/740pcs                        |

## WARRANTY



## IV CURVE



# ODA-156MH



Lower power loss



Lower temperature coefficient



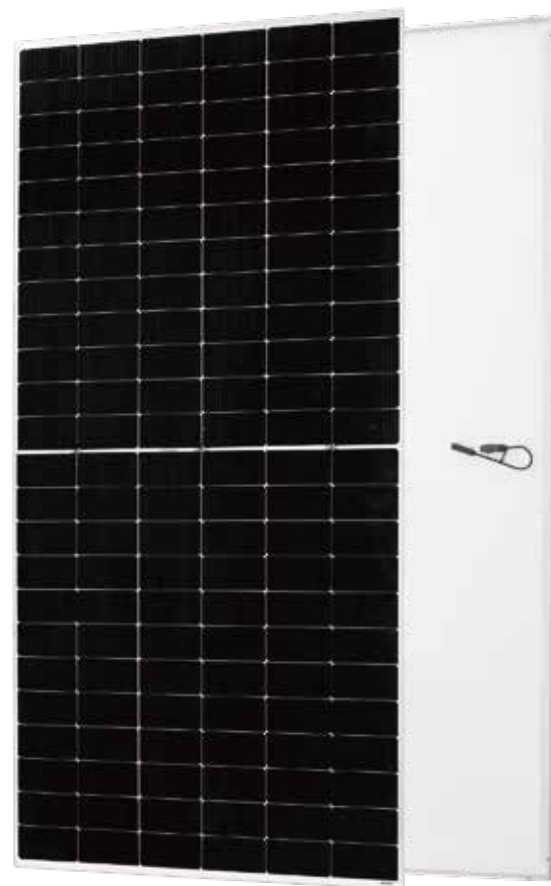
Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy



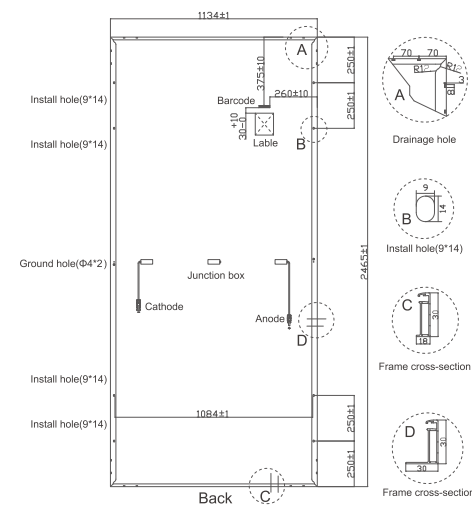
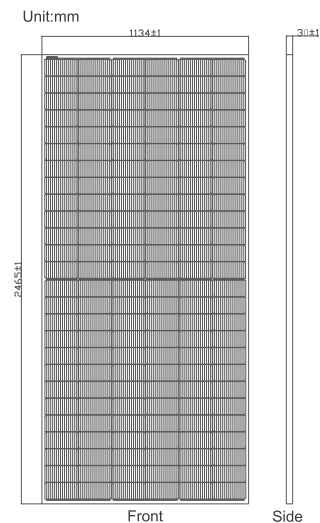
12  
YEARS

Guarantee

25  
YEARS

Warranty

Osda



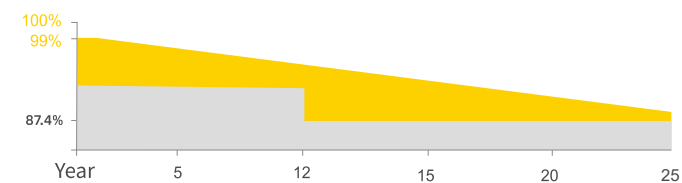
## SPECIFICATION

| Model type                                   | ODA600-39V-MH            | ODA605-39V-MH | ODA610-39V-MH | ODA615-39V-MH | ODA620-39V-MH | ODA625-39V-MH | ODA630-39V-MH |
|----------------------------------------------|--------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Peak Power (Pmax)                            | 600.00                   | 605.00        | 610.00        | 615.00        | 620.00        | 625.00        | 630.00        |
| Maximum Power Voltage (Vmp)                  | 45.39                    | 45.49         | 45.59         | 45.69         | 45.79         | 45.89         | 45.99         |
| Maximum Power Current (Imp)                  | 13.22                    | 13.30         | 13.38         | 13.46         | 13.54         | 13.62         | 13.70         |
| Open Circuit Voltage (Voc)                   | 54.95±3%                 | 55.10±3%      | 55.25±3%      | 55.40±3%      | 55.55±3%      | 55.70±3%      | 55.85±3%      |
| Short Circuit Current (Isc)                  | 13.97±3%                 | 14.04±3%      | 14.11±3%      | 14.18±3%      | 14.25±3%      | 14.32±3%      | 14.39±3%      |
| Module Efficiency (%)                        | 21.46                    | 21.64         | 21.82         | 22.00         | 22.18         | 22.36         | 22.54         |
| Power Tolerance                              | 0~+3 W                   |               |               |               |               |               |               |
| Pmax Temperature Coefficients (W/°C)         | -0.300 %/°C              |               |               |               |               |               |               |
| Voc Temperature Coefficients (V/°C)          | -0.260%/°C               |               |               |               |               |               |               |
| Isc Temperature Coefficients (A/°C)          | +0.047%/°C               |               |               |               |               |               |               |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |               |               |               |               |               |               |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |               |               |               |               |               |               |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |               |               |               |               |               |               |

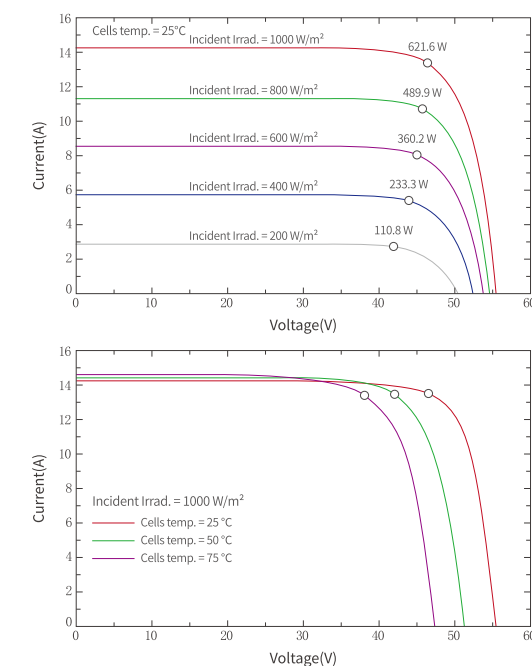
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                                   |
|--------------------------------|---------------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Mono                                |
| No. of Cells                   | 156 (12*13)                                       |
| Dimensions(mm)                 | 2465*1134*30                                      |
| Weight                         | 30kg                                              |
| Front Glass(mm)                | 3.2mm high transmission, low iron, tempered glass |
| Frame                          | Anodized Aluminium Alloy (Silver/Black)           |
| Maximum System Voltage (V)     | 1500 V                                            |
| Maximum Series Fuse Rating (A) | 25 A                                              |
| Junction box                   | IP68 3diodes                                      |
| Output cables                  | 4mm² cable 90cm (including MC4 connector)         |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                                     |
| 20FT container                 | 4 Packages/148pcs                                 |
| 40HQ container                 | 16 Packages/592pcs                                |

## WARRANTY



## IV CURVE



# ODA-156MHD



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy



Optional (unframed)



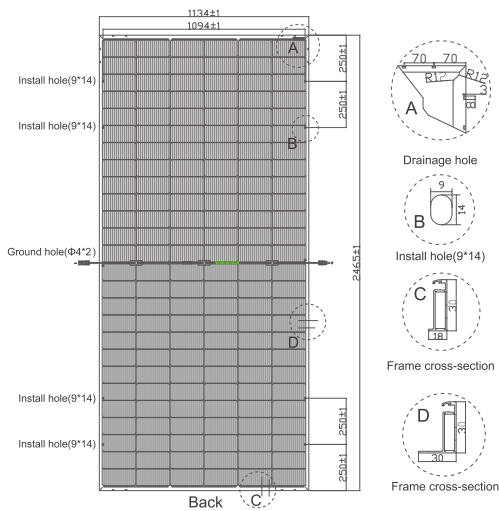
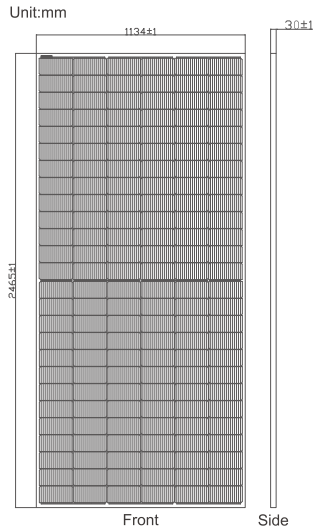
15  
YEARS

Guarantee

30  
YEARS

Warranty

Osda



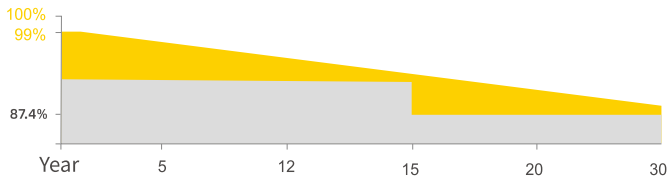
## SPECIFICATION (STC)

| Model type                                   | ODA605-39V-MHD           | ODA610-39V-MHD | ODA615-39V-MHD | ODA620-39V-MHD | ODA625-39V-MHD | ODA630-39V-MHD |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 605.00                   | 610.00         | 615.00         | 620.00         | 625.00         | 630.00         |
| Maximum Power Voltage (Vmp)                  | 45.49                    | 45.59          | 45.69          | 45.79          | 45.89          | 45.99          |
| Maximum Power Current (Imp)                  | 13.30                    | 13.38          | 13.46          | 13.54          | 13.62          | 13.70          |
| Open Circuit Voltage (Voc)                   | 55.10±3%                 | 55.25±3%       | 55.40±3%       | 55.55±3%       | 55.70±3%       | 55.85±3%       |
| Short Circuit Current (Isc)                  | 14.04±3%                 | 14.11±3%       | 14.18±3%       | 14.25±3%       | 14.32±3%       | 14.39±3%       |
| Module Efficiency (%)                        | 21.64                    | 21.82          | 22.00          | 22.18          | 22.36          | 22.54          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.290%/°C               |                |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.250 %/°C              |                |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.041%/°C               |                |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~-+85 °C              |                |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |                |

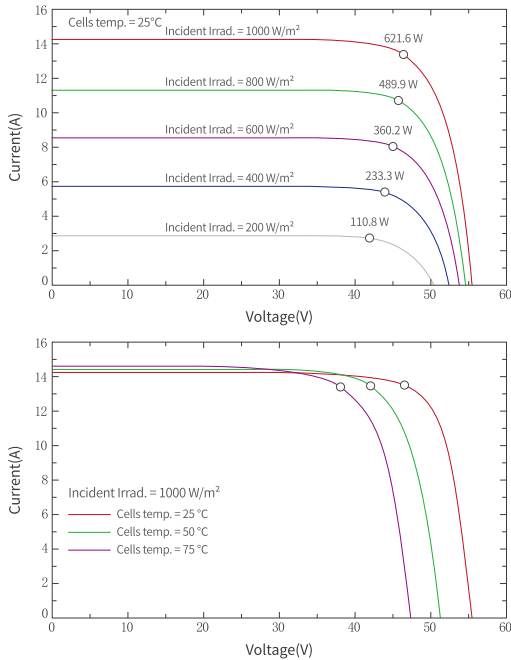
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                           |
|--------------------------------|-------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type Bifacial Mono               |
| No. of Cells                   | 156 (12*13)                               |
| Dimensions(mm)                 | 2465*1134*30                              |
| Weight                         | 34.4kg                                    |
| Front Glass(mm)                | 2.0mm AR coating tempered glass           |
| Back Glass(mm)                 | 2.0mm Glazed Glass                        |
| Frame                          | Anodized Aluminium Alloy(Silver/Black)    |
| Maximum System Voltage (V)     | 1500 V                                    |
| Maximum Series Fuse Rating (A) | 30 A                                      |
| Junction box                   | IP68 3diodes                              |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                             |
| 20FT container                 | 4 Packages/148pcs                         |
| 40HQ container                 | 16 Packages/592pcs                        |

## WARRANTY



## IV CURVE



ODA-96MHD



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy

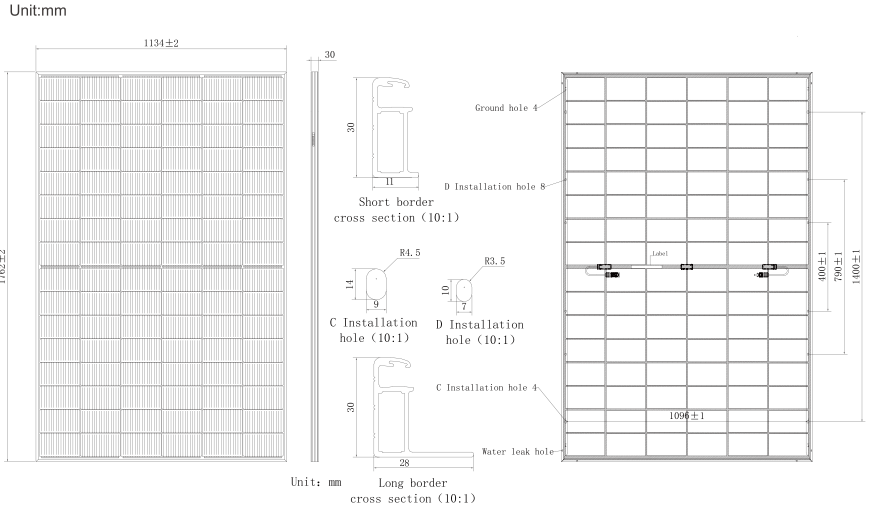


15  
YEARS

Guarantee

30  
YEARS

Warranty



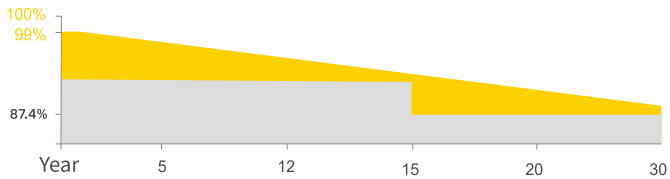
SPECIFICATION (STC)

| Model type                                   | ODA420-24V-MHD           | ODA425-24V-MHD | ODA430-24V-MHD | ODA435-24V-MHD | ODA440-24V-MHD |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 420.00                   | 425.00         | 430.00         | 435.00         | 440.00         |
| Maximum Power Voltage (Vmp)                  | 29.01                    | 29.19          | 29.37          | 29.55          | 29.73          |
| Maximum Power Current (Imp)                  | 14.49                    | 14.57          | 14.65          | 14.73          | 14.81          |
| Open Circuit Voltage (Voc)                   | 34.12±3%                 | 34.30±3%       | 34.48±3%       | 34.66±3%       | 34.84±3%       |
| Short Circuit Current (Isc)                  | 15.74±3%                 | 15.79±3%       | 15.84±3%       | 15.89±3%       | 15.94±3%       |
| Module Efficiency (%)                        | 21.02                    | 21.27          | 21.52          | 21.77          | 22.02          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.290%/°C               |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.230%/°C               |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.050%/°C               |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |

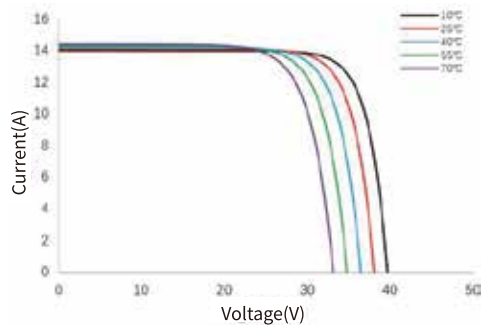
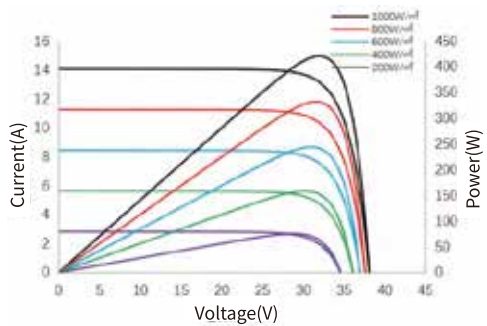
MECHANICAL CHARACTERISTICS&PACKING

|                                |                                           |
|--------------------------------|-------------------------------------------|
| Cell Type (mm)                 | 182*105 N-Type Mono                       |
| No. of Cells                   | 96(8*12)                                  |
| Dimensions(mm)                 | 1762*1134*30                              |
| Weight                         | 24.50kg                                   |
| Front Glass(mm)                | 2.0mm coated semi-tempered glass          |
| Back Glass(mm)                 | 2.0mm glazed semi-tempered glass          |
| Frame                          | Anodized Aluminium Alloy(Silver/Black)    |
| Maximum System Voltage (V)     | 1500 V                                    |
| Maximum Series Fuse Rating (A) | 30 A                                      |
| Junction box                   | IP68 3diodes                              |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                             |
| 20FT container                 | 6 Packages/222 pcs                        |
| 40HQ container                 | 26 Packages/962 pcs                       |

WARRANTY



IV CURVE



ODA-108MHB



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy

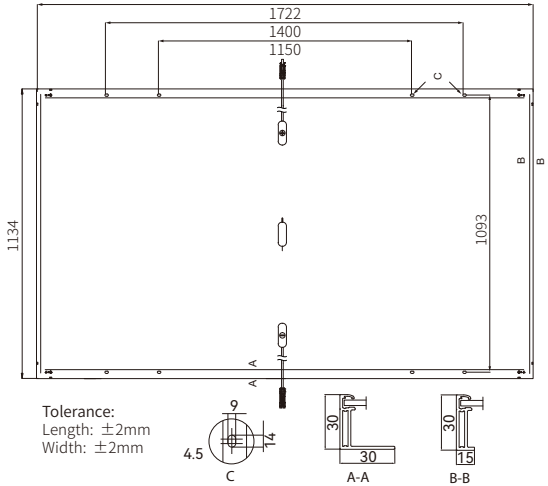


12  
YEARS  
Guarantee

25  
YEARS  
Warranty



Unit:mm



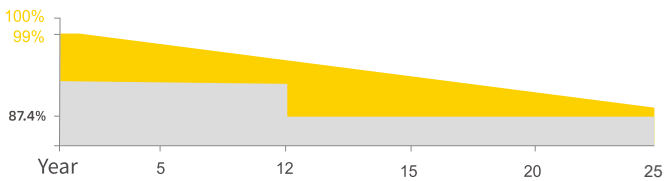
SPECIFICATION (STC)

| Model type                                   | ODA415-27BC-MHB          | ODA420-27BC-MHB | ODA425-27BC-MHB | ODA430-27BC-MHB | ODA435-27BC-MHB |
|----------------------------------------------|--------------------------|-----------------|-----------------|-----------------|-----------------|
| Peak Power (Pmax)                            | 415.00                   | 420.00          | 425.00          | 430.00          | 435.00          |
| Maximum Power Voltage (Vmp)                  | 38.83                    | 39.03           | 39.23           | 39.43           | 39.63           |
| Maximum Power Current (Imp)                  | 13.78                    | 13.85           | 13.93           | 14.00           | 14.08           |
| Open Circuit Voltage (Voc)                   | 32.56±3%                 | 32.76±3%        | 32.96±3%        | 33.16±3%        | 33.36±3%        |
| Short Circuit Current (Isc)                  | 12.75±3%                 | 12.83±3%        | 12.90±3%        | 12.97±3%        | 13.05±3%        |
| Module Efficiency (%)                        | 21.25                    | 21.50           | 21.76           | 22.02           | 22.28           |
| Power Tolerance                              | 0~+3 W                   |                 |                 |                 |                 |
| Pmax Temperature Coefficients (W/°C)         | -0.290%/°C               |                 |                 |                 |                 |
| Voc Temperature Coefficients (V/°C)          | -0.230%/°C               |                 |                 |                 |                 |
| Isc Temperature Coefficients (A/°C)          | +0.050%/°C               |                 |                 |                 |                 |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                 |                 |                 |                 |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                 |                 |                 |                 |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                 |                 |                 |                 |

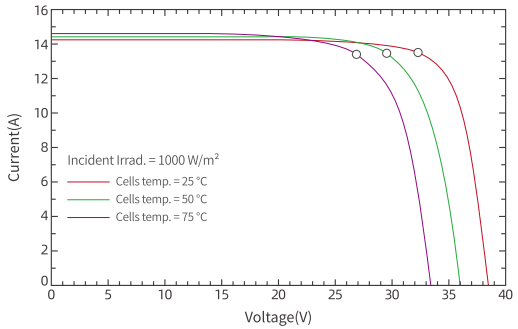
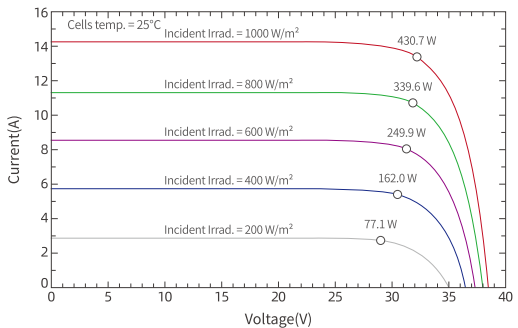
MECHANICAL CHARACTERISTICS&PACKING

|                                |                                                   |
|--------------------------------|---------------------------------------------------|
| Cell Type (mm)                 | 182*91 N-Type HPBC Black Mono                     |
| No. of Cells                   | 108(12*9)                                         |
| Dimensions(mm)                 | 1722*1134*30                                      |
| Weight                         | 20.80kg                                           |
| Front Glass(mm)                | 3.2mm high transmission, low iron, tempered glass |
| Frame                          | Anodized Aluminium Alloy(Silver/Black)            |
| Maximum System Voltage (V)     | 1500 V                                            |
| Maximum Series Fuse Rating (A) | 30 A                                              |
| Junction box                   | IP68 3diodes                                      |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector)         |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                                     |
| 20FT container                 | 6 Packages/222 pcs                                |
| 40HQ container                 | 26 Packages/962 pcs                               |

WARRANTY



IV CURVE



# ODA-144MHD



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



Better performance in lower light environment



Lower shipping cost on per watt



Lower leveled cost on energy



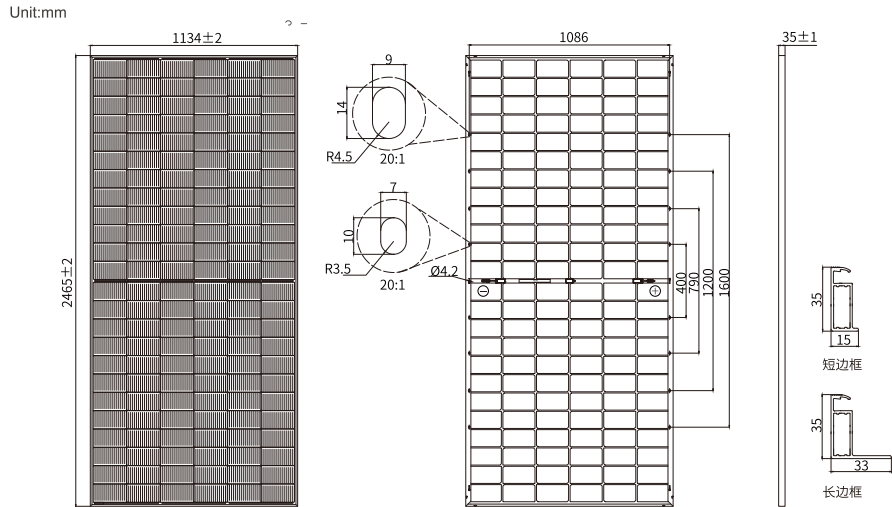
15  
YEARS

Guarantee

30  
YEARS

Warranty

Osda



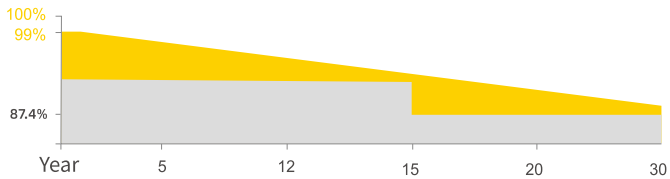
## SPECIFICATION (STC)

| Model type                                   | ODA605-36V-MHD           | ODA610-36V-MHD | ODA615-36V-MHD | ODA620-36V-MHD | ODA625-36V-MHD | ODA630-36V-MHD |
|----------------------------------------------|--------------------------|----------------|----------------|----------------|----------------|----------------|
| Peak Power (Pmax)                            | 605.00                   | 610.00         | 615.00         | 620.00         | 625.00         | 630.00         |
| Maximum Power Voltage (Vmp)                  | 42.91                    | 43.11          | 43.31          | 43.51          | 43.71          | 43.90          |
| Maximum Power Current (Imp)                  | 14.10                    | 14.15          | 14.20          | 14.25          | 14.30          | 14.35          |
| Open Circuit Voltage (Voc)                   | 51.27±3%                 | 51.47±3%       | 51.67±3%       | 51.86±3%       | 52.05±3%       | 52.24±3%       |
| Short Circuit Current (Isc)                  | 14.83±3%                 | 14.88±3%       | 14.93±3%       | 14.98±3%       | 15.03±3%       | 15.08±3%       |
| Module Efficiency (%)                        | 21.64                    | 22.36          | 22.00          | 22.18          | 22.35          | 22.54          |
| Power Tolerance                              | 0~+3 W                   |                |                |                |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.290%/°C               |                |                |                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.250 %/°C              |                |                |                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.041%/°C               |                |                |                |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 45±2 °C                  |                |                |                |                |                |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                |                |                |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |                |                |                |

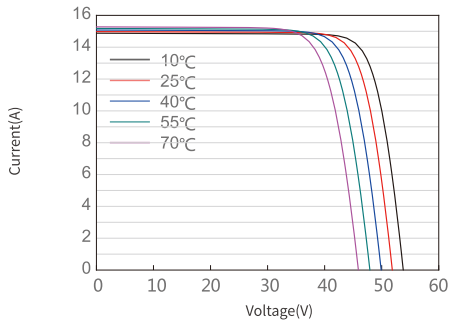
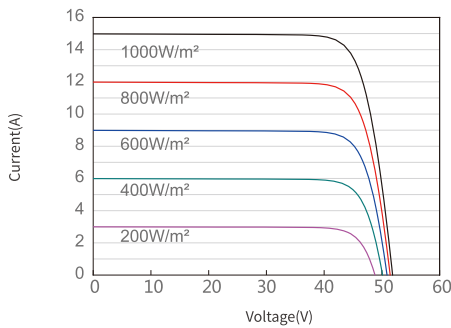
## MECHANICAL CHARACTERISTICS&PACKING

|                                |                                           |
|--------------------------------|-------------------------------------------|
| Cell Type (mm)                 | 182*105 N-Type Bifacial Mono              |
| No. of Cells                   | 144 (12*12)                               |
| Dimensions(mm)                 | 2465*1134*35                              |
| Weight                         | 34.6kg                                    |
| Front Glass(mm)                | 2.0mm AR coating tempered glass           |
| Back Glass(mm)                 | 2.0mm Glazed Glass                        |
| Frame                          | Anodized Aluminium Alloy(Silver/Black)    |
| Maximum System Voltage (V)     | 1500 V                                    |
| Maximum Series Fuse Rating (A) | 30 A                                      |
| Junction box                   | IP68 3diodes                              |
| Output cables                  | 4mm² cable 90cm (Including MC4 connector) |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                             |
| 20FT container                 | 4 Packages/124 pcs                        |
| 40HQ container                 | 16 Packages/496 pcs                       |

## WARRANTY



## IV CURVE



ODA-108MHB



Lower power loss



Lower temperature coefficient



Higher double-sided revenue



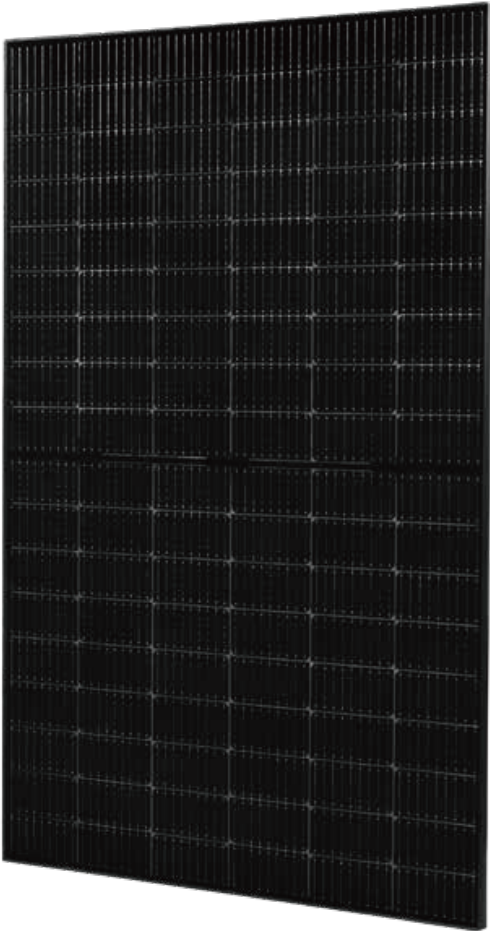
Better performance in lower light environment



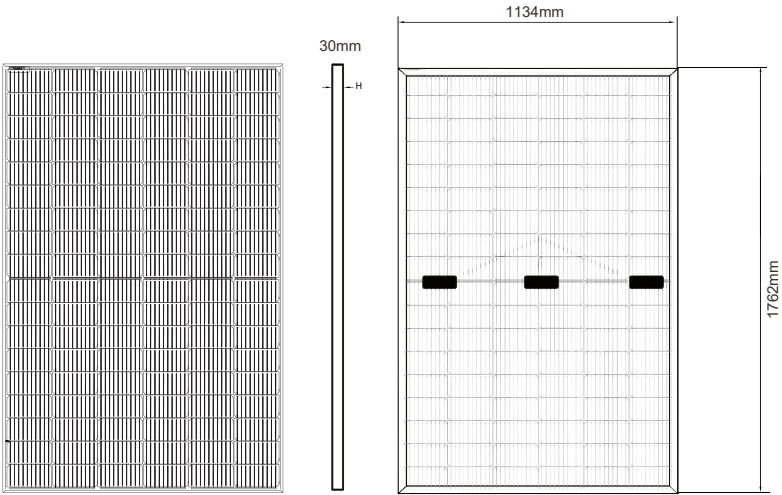
Lower shipping cost on per watt



Lower levelized cost on energy



Unit:mm



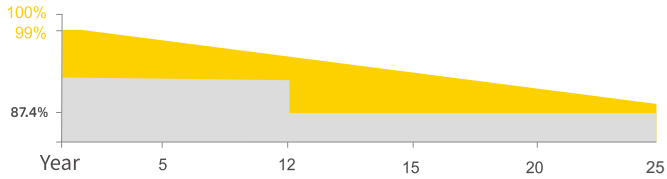
SPECIFICATION (STC)

| Model type                                   | ODA435-27V-MHB           | ODA440-27V-MHB | ODA445-27V-MHB |
|----------------------------------------------|--------------------------|----------------|----------------|
| Peak Power (Pmax)                            | 435                      | 440            | 445            |
| Maximum Power Voltage (Vmp)                  | 32.22                    | 32.49          | 32.80          |
| Maximum Power Current (Imp)                  | 13.50                    | 13.54          | 13.56          |
| Open Circuit Voltage (Voc)                   | 37.75±3%                 | 38.07±3%       | 38.29±3%       |
| Short Circuit Current (Isc)                  | 14.32±3%                 | 14.33±3%       | 14.39±3%       |
| Module Efficiency (%)                        | 21.77                    | 22.02          | 22.27          |
| Power Tolerance                              | 0~+3 W                   |                |                |
| Pmax Temperature Coefficients (W/°C)         | -0.24%/°C                |                |                |
| Voc Temperature Coefficients (V/°C)          | -0.22%/°C                |                |                |
| Isc Temperature Coefficients (A/°C)          | +0.047%/°C               |                |                |
| NOCT Nominal Operating Cell Temperature (°C) | 43±3°C                   |                |                |
| Operating and Storage Temperature (°C)       | -40~+85 °C               |                |                |
| Standard Test Condition (STC)                | 1000W/m², AM1.5;25+/-2°C |                |                |

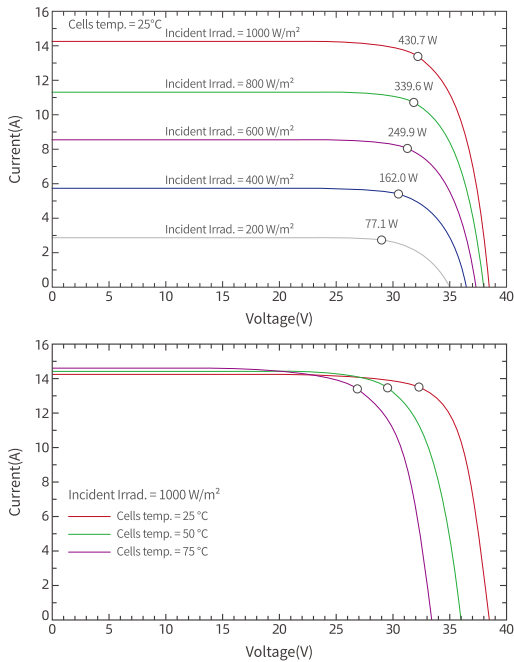
MECHANICAL CHARACTERISTICS&PACKING

|                                |                                                     |
|--------------------------------|-----------------------------------------------------|
| Cell Type (mm)                 | 108 N-type bifacial mono half cells                 |
| No. of Cells                   | 108(9x 12)                                          |
| Dimensions(mm)                 | 1762 x1134x 30                                      |
| Weight                         | 25.90kg                                             |
| Superstrate                    | High Transmission,AR Coated Heat Strengthened Glass |
| Frame                          | High strength alloy steel                           |
| Maximum System Voltage (V)     | 1500V                                               |
| Maximum Series Fuse Rating (A) | 30A                                                 |
| Junction box                   | Potted,IP68,1500VDC,3 Schottky by pass diodes       |
| Output cables                  | 4mm² cable 35cm(Including MC4 connector)            |
| MaxWind Load/Snow Load         | 2400Pa/5400Pa                                       |
| 20FT container                 | 6 Packages/222 pcs                                  |
| 40HQ container                 | 26 Packages/962 pcs                                 |

WARRANTY



IV CURVE



12  
YEARS

Guarantee

25  
YEARS

Warranty



Mono Half-Cell PV Module ( 182 TOPCon )

| Model     | Product type | Power range | Cell type(mm) | No. Of cells | Maximum eff | Dimension(mm) | Frame            |
|-----------|--------------|-------------|---------------|--------------|-------------|---------------|------------------|
| ODA-108MH | Single glass | 420-440w    | 182*91 TOPCon | 12*9         | 22.54%      | 1722*1134*30  | ( silver/black ) |
| ODA-120MH | Single glass | 460-490w    | 182*91 TOPCon | 12*10        | 22.47%      | 1903*1134*30  | ( silver/black ) |
| ODA-132MH | Single glass | 500-540w    | 182*91 TOPCon | 12*11        | 22.53%      | 2094*1134*30  | ( silver/black ) |
| ODA-144MH | Single glass | 550-590w    | 182*91 TOPCon | 12*12        | 22.45%      | 2278*1134*30  | ( silver/black ) |
| ODA-156MH | Single glass | 600-630w    | 182*91 TOPCon | 12*13        | 22.54%      | 2465*1134*30  | ( silver/black ) |

Mono Half-Cell PV Module ( 210 TOPCon )

| Model     | Product type | Power range | Cell type(mm)  | No. Of cells | Maximum eff | Dimension(mm) | Frame            |
|-----------|--------------|-------------|----------------|--------------|-------------|---------------|------------------|
| ODA-120MH | Single glass | 410-425w    | 210*70 TOPCon  | 12*10        | 22.11%      | 1754*1096*30  | ( silver/black ) |
| ODA-150MH | Single glass | 510-530w    | 210*70 TOPCon  | 15*10        | 22.23%      | 2176*1096*30  | ( silver/black ) |
| ODA-100MH | Single glass | 490-530w    | 210*105 TOPCon | 10*10        | 22.23%      | 2176*1096*30  | ( silver/black ) |
| ODA-110MH | Single glass | 530-580w    | 210*105 TOPCon | 10*11        | 22.20%      | 2384*1096*30  | ( silver/black ) |
| ODA-120MH | Single glass | 585-635w    | 210*105 TOPCon | 12*10        | 22.44%      | 2172*1303*30  | ( silver/black ) |
| ODA-132MH | Single glass | 645-700w    | 210*105 TOPCon | 12*11        | 22.54%      | 2384*1303*30  | ( silver/black ) |

Double-glass mono half-cell PV module ( 182 TOPCon )

| Model      | Product type | Power range | Cell type(mm) | No. Of cells | Maximum eff | Dimension(mm) | Frame                      |
|------------|--------------|-------------|---------------|--------------|-------------|---------------|----------------------------|
| ODA-108MHD | Dual glass   | 395-440w    | 182*91 TOPCon | 12*9         | 22.54%      | 1722*1134*30  | ( silver/black/frameless ) |
| ODA-120MHD | Dual glass   | 440-490w    | 182*91 TOPCon | 12*10        | 22.47%      | 1903*1134*30  | ( silver/black/frameless ) |
| ODA-132MHD | Dual glass   | 480-540w    | 182*91 TOPCon | 12*11        | 22.53%      | 2094*1134*30  | ( silver/black/frameless ) |
| ODA-144MHD | Dual glass   | 525-590w    | 182*91 TOPCon | 12*12        | 22.45%      | 2278*1134*30  | ( silver/black/frameless ) |
| ODA-156MHD | Dual glass   | 570-630w    | 182*91 TOPCon | 12*13        | 22.54%      | 2465*1134*30  | ( silver/black/frameless ) |

Double-glass mono half-cell PV module ( 210 TOPCon )

| Model      | Product type | Power range | Cell type(mm)  | No. Of cells | Maximum eff | Dimension(mm) | Frame                      |
|------------|--------------|-------------|----------------|--------------|-------------|---------------|----------------------------|
| ODA-120MHD | Dual glass   | 410-425w    | 210*70 TOPCon  | 12*10        | 22.11%      | 1754*1096*30  | ( silver/black/frameless ) |
| ODA-150MHD | Dual glass   | 510-535w    | 210*70 TOPCon  | 15*10        | 22.44%      | 2176*1096*30  | ( silver/black/frameless ) |
| ODA-100MHD | Dual glass   | 490-535w    | 210*105 TOPCon | 10*10        | 22.44%      | 2176*1096*30  | ( silver/black/frameless ) |
| ODA-110MHD | Dual glass   | 540-585w    | 210*105 TOPCon | 10*11        | 22.39%      | 2384*1096*30  | ( silver/black/frameless ) |
| ODA-120MHD | Dual glass   | 585-640w    | 210*105 TOPCon | 12*10        | 22.62%      | 2172*1303*30  | ( silver/black/frameless ) |
| ODA-132MHD | Dual glass   | 645-705w    | 210*105 TOPCon | 12*11        | 22.70%      | 2384*1303*30  | ( silver/black/frameless ) |

Mono Half-Cell PY Module with Transparent Backsheet ( 182 TOPCon )

| Model      | Product type          | Power range | Cell type(mm) | No. Of cells | Maximum eff | Dimension(mm) | Frame            |
|------------|-----------------------|-------------|---------------|--------------|-------------|---------------|------------------|
| ODA-108MHT | Transparent Backboard | 395-440w    | 182*91 TOPCon | 12*9         | 22.54%      | 1722*1134*30  | ( silver/black ) |
| ODA-120MHT | Transparent Backboard | 440-490w    | 182*91 TOPCon | 12*10        | 22.47%      | 1903*1134*30  | ( silver/black ) |
| ODA-132MHT | Transparent Backboard | 480-540w    | 182*91 TOPCon | 12*11        | 22.53%      | 2094*1134*30  | ( silver/black ) |
| ODA-144MHT | Transparent Backboard | 525-590w    | 182*91 TOPCon | 12*12        | 22.45%      | 2278*1134*30  | ( silver/black ) |
| ODA-156MHT | Transparent Backboard | 570-630w    | 182*91 TOPCon | 12*13        | 22.54%      | 2465*1134*30  | ( silver/black ) |

Mono Half-Cell PY Module with Transparent Backsheet ( 210 TOPCon )

| Model      | Product type          | Power range | Cell type(mm)  | No. Of cells | Maximum eff | Dimension(mm) | Frame            |
|------------|-----------------------|-------------|----------------|--------------|-------------|---------------|------------------|
| ODA-120MHT | Transparent Backboard | 410-425w    | 210*70 TOPCon  | 12*10        | 22.11%      | 1722*1134*30  | ( silver/black ) |
| ODA-150MHT | Transparent Backboard | 510-535w    | 210*70 TOPCon  | 15*10        | 22.44%      | 1903*1134*30  | ( silver/black ) |
| ODA-100MHT | Transparent Backboard | 490-535w    | 210*105 TOPCon | 10*10        | 22.44%      | 2094*1134*30  | ( silver/black ) |
| ODA-110MHT | Transparent Backboard | 540-585w    | 210*105 TOPCon | 10*11        | 22.39%      | 2278*1134*30  | ( silver/black ) |
| ODA-120MHT | Transparent Backboard | 585-640w    | 210*105 TOPCon | 12*10        | 22.62%      | 2465*1134*30  | ( silver/black ) |
| ODA-132MHT | Transparent Backboard | 645-705w    | 210*105 TOPCon | 12*11        | 22.70%      | 2465*1134*30  | ( silver/black ) |



All black mono half-cell PV module ( 182 TOPCon )

| Model      | Product type | Power range | Cell type(mm) | No. Of cells | Maximum eff | Dimension(mm) | Frame     |
|------------|--------------|-------------|---------------|--------------|-------------|---------------|-----------|
| ODA-108MHB | Single glass | 410-440w    | 182*91 TOPCon | 12*9         | 22.54%      | 1722*1134*30  | ( black ) |
| ODA-120MHB | Single glass | 460-490w    | 182*91 TOPCon | 12*10        | 22.47%      | 1903*1134*30  | ( black ) |
| ODA-132MHB | Single glass | 500-540w    | 182*91 TOPCon | 12*11        | 22.53%      | 2094*1134*30  | ( black ) |
| ODA-144MHB | Single glass | 550-590w    | 182*91 TOPCon | 12*12        | 22.45%      | 2278*1134*30  | ( black ) |
| ODA-156MHB | Single glass | 590-630w    | 182*91 TOPCon | 12*13        | 22.54%      | 2465*1134*30  | ( black ) |

All black mono half-cell PV module ( 210 TOPCon )

| Model      | Product type | Power range | Cell type(mm)  | No. Of cells | Maximum eff | Dimension(mm) | Frame     |
|------------|--------------|-------------|----------------|--------------|-------------|---------------|-----------|
| ODA-120MHB | Single glass | 410-425w    | 210*70 TOPCon  | 12*10        | 22.11%      | 1754*1096*30  | ( black ) |
| ODA-150MHB | Single glass | 510-530w    | 210*70 TOPCon  | 15*10        | 22.23%      | 2176*1096*30  | ( black ) |
| ODA-100MHB | Single glass | 490-530w    | 210*105 TOPCon | 10*10        | 22.23%      | 2176*1096*30  | ( black ) |
| ODA-110MHB | Single glass | 530-580w    | 210*105 TOPCon | 10*11        | 22.20%      | 2384*1096*30  | ( black ) |
| ODA-120MHB | Single glass | 585-635w    | 210*105 TOPCon | 12*10        | 22.44%      | 2172*1303*30  | ( black ) |
| ODA-132MHB | Single glass | 645-700w    | 210*105 TOPCon | 12*11        | 22.54%      | 2384*1303*30  | ( black ) |

All-black double-glass mono half-cell PV module ( 182 TOPCon )

| Model       | Product type | Power range | Cell type(mm) | No. Of cells | Maximum eff | Dimension(mm) | Frame               |
|-------------|--------------|-------------|---------------|--------------|-------------|---------------|---------------------|
| ODA-108MHBD | Dual glass   | 395-440w    | 182*91 TOPCon | 12*9         | 22.54%      | 1722*1134*30  | ( black/frameless ) |
| ODA-120MHBD | Dual glass   | 440-490w    | 182*91 TOPCon | 12*10        | 22.47%      | 1903*1134*30  | ( black/frameless ) |
| ODA-132MHBD | Dual glass   | 480-540w    | 182*91 TOPCon | 12*11        | 22.53%      | 2094*1134*30  | ( black/frameless ) |
| ODA-144MHBD | Dual glass   | 525-590w    | 182*91 TOPCon | 12*12        | 22.45%      | 2278*1134*30  | ( black/frameless ) |
| ODA-156MHBD | Dual glass   | 570-630w    | 182*91 TOPCon | 12*13        | 22.54%      | 2465*1134*30  | ( black/frameless ) |

All-black double-glass mono half-cell PV module ( 210 TOPCon )

| Model       | Product type | Power range | Cell type(mm)  | No. Of cells | Maximum eff | Dimension(mm) | Frame               |
|-------------|--------------|-------------|----------------|--------------|-------------|---------------|---------------------|
| ODA-120MHBD | Dual glass   | 410-425w    | 210*70 TOPCon  | 12*10        | 22.11%      | 1754*1096*30  | ( black/frameless ) |
| ODA-150MHBD | Dual glass   | 510-535w    | 210*70 TOPCon  | 15*10        | 22.44%      | 2176*1096*30  | ( black/frameless ) |
| ODA-100MHBD | Dual glass   | 490-535w    | 210*105 TOPCon | 10*10        | 22.44%      | 2176*1096*30  | ( black/frameless ) |
| ODA-110MHBD | Dual glass   | 540-585w    | 210*105 TOPCon | 10*11        | 22.39%      | 2384*1096*30  | ( black/frameless ) |
| ODA-120MHBD | Dual glass   | 585-640w    | 210*105 TOPCon | 12*10        | 22.62%      | 2172*1303*30  | ( black/frameless ) |
| ODA-132MHBD | Dual glass   | 645-705w    | 210*105 TOPCon | 12*11        | 22.70%      | 2384*1303*30  | ( black/frameless ) |

All Black Mono Half-Cell PV Module with Transparent Backsheet ( 182 TOPCon )

| Model       | Product type          | Power range | Cell type(mm) | No. Of cells | Maximum eff | Dimension(mm) | Frame     |
|-------------|-----------------------|-------------|---------------|--------------|-------------|---------------|-----------|
| ODA-108MHBT | Transparent Backboard | 395-440w    | 182*91 TOPCon | 12*9         | 22.54%      | 1722*1134*30  | ( black ) |
| ODA-120MHBT | Transparent Backboard | 440-490w    | 182*91 TOPCon | 12*10        | 22.47%      | 1903*1134*30  | ( black ) |
| ODA-132MHBT | Transparent Backboard | 480-540w    | 182*91 TOPCon | 12*11        | 22.53%      | 2094*1134*30  | ( black ) |
| ODA-144MHBT | Transparent Backboard | 525-590w    | 182*91 TOPCon | 12*12        | 22.45%      | 2278*1134*30  | ( black ) |
| ODA-156MHBT | Transparent Backboard | 570-630w    | 182*91 TOPCon | 12*13        | 22.54%      | 2465*1134*30  | ( black ) |

All Black Mono Half-Cell PV Module with Transparent Backsheet ( 210 TOPCon )

| Model       | Product type          | Power range | Cell type(mm)  | No. Of cells | Maximum eff | Dimension(mm) | Frame     |
|-------------|-----------------------|-------------|----------------|--------------|-------------|---------------|-----------|
| ODA-120MHBT | Transparent Backboard | 410-425w    | 210*70 TOPCon  | 12*10        | 22.11%      | 1722*1134*30  | ( black ) |
| ODA-150MHBT | Transparent Backboard | 510-535w    | 210*70 TOPCon  | 15*10        | 22.44%      | 1903*1134*30  | ( black ) |
| ODA-100MHBT | Transparent Backboard | 490-535w    | 210*105 TOPCon | 10*10        | 22.44%      | 2094*1134*30  | ( black ) |
| ODA-110MHBT | Transparent Backboard | 540-585w    | 210*105 TOPCon | 10*11        | 22.39%      | 2278*1134*30  | ( black ) |
| ODA-120MHBT | Transparent Backboard | 585-640w    | 210*105 TOPCon | 12*10        | 22.62%      | 2465*1134*30  | ( black ) |
| ODA-132MHBT | Transparent Backboard | 645-705w    | 210*105 TOPCon | 12*11        | 22.70%      | 2465*1134*30  | ( black ) |

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